

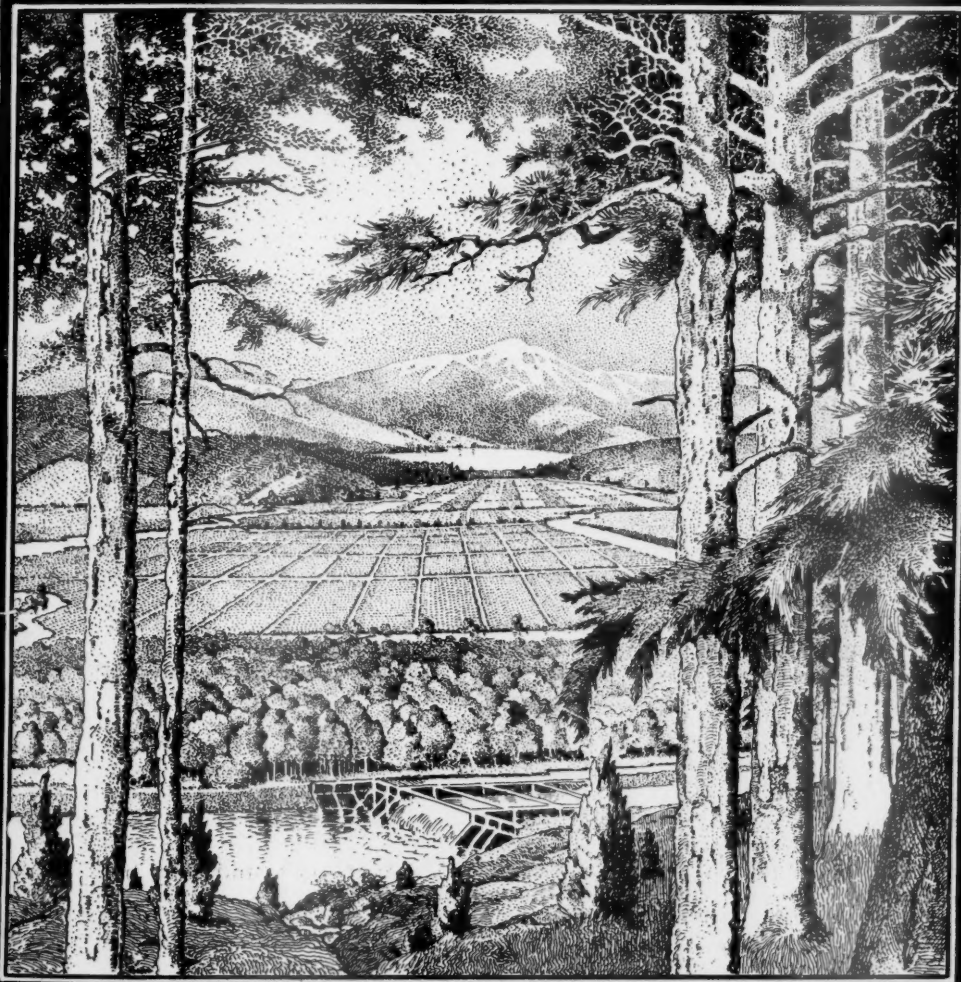
ANNUAL MEETING OF AMERICAN FORESTRY ASSOCIATION

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JANUARY, 1907

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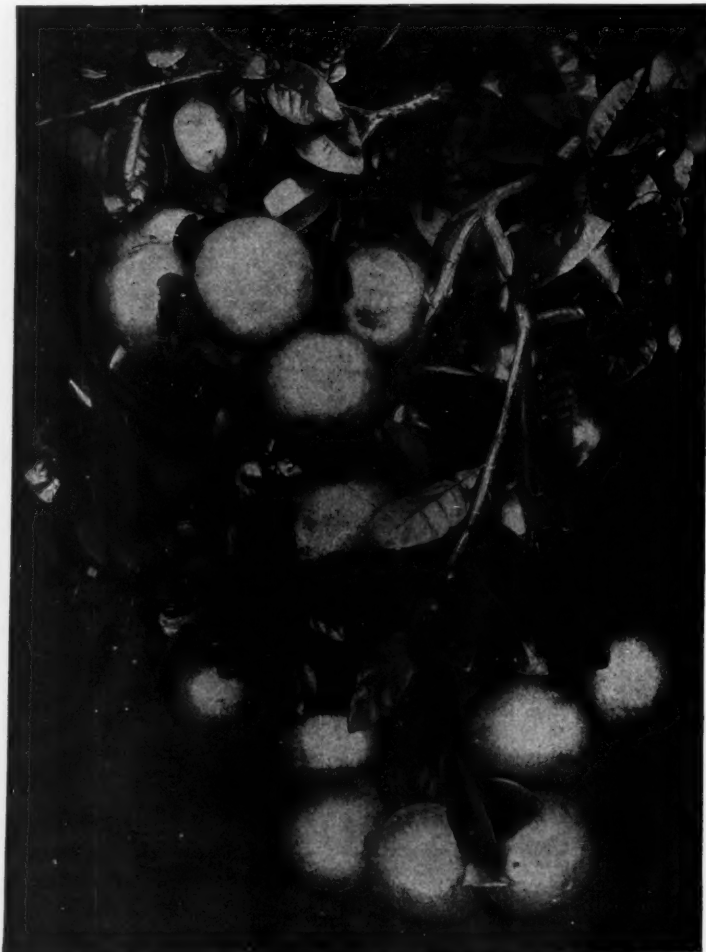
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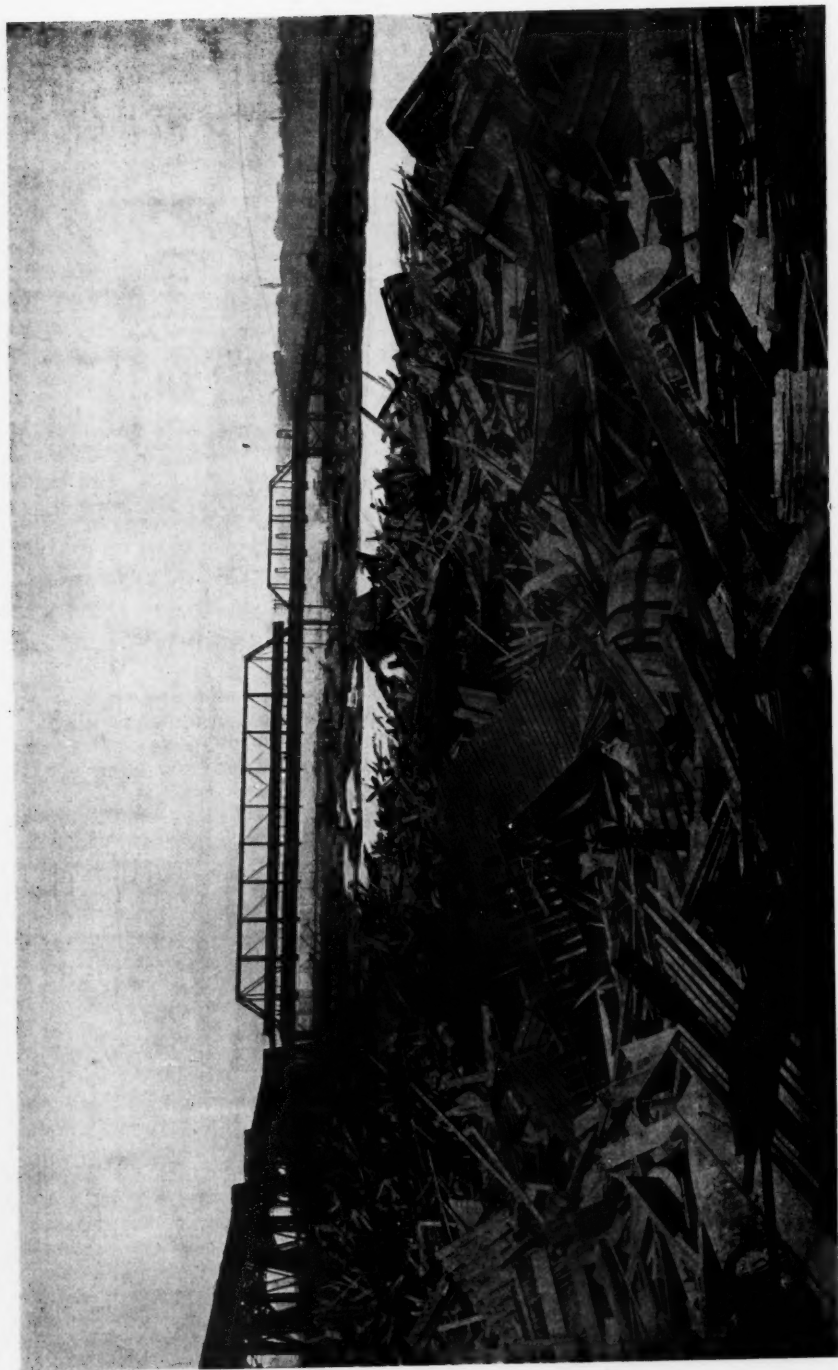
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Scene showing the awful destruction of Floods on Kansas River in 1903. Flood Debris at Kansas City, Mo. Missouri Pacific R. R. Bridge on left.

FORESTRY AND IRRIGATION

VOL. XIII.

JANUARY

No. 1

EDITORIAL

Retrospect and Plea

With this issue the magazine, FORESTRY AND IRRIGATION, appears as the property of the American Forestry Association. This fact may justify a brief survey of the history of the publication.

The progenitor of FORESTRY AND IRRIGATION was "The Forester." This publication was founded by Dr. John Gifford, of Princeton, N. J., and published privately. Later, it was transferred to the American Forestry Association. In January, 1898, it first appeared as the official organ of the Association. Later, Mr. John Keim Stauffer became editor, to be succeeded in April, 1900, by Henry James 2d, he, in turn being followed in April, 1901, by H. M. Suter.

In January, 1902, "The Forester" and "National Irrigation," the official organ of the National Irrigation Association, were combined. The new magazine was named FORESTRY AND IRRIGATION; it was issued by H. M. Suter, publisher, under the direction of a joint committee of the two organizations. At the beginning of 1903 the size of the publication was increased by 16 pages.

In March, 1904, the National Irrigation Association withdrew. The following month, the H. M. Suter Publishing Company was formed and assumed the publication of the magazine. In June, 1905, the Forestry and Irrigation Publishing Company was organized. This company purchased the magazine, FORESTRY AND IRRIGATION, and has conducted it till the last issue, selling to the Association sufficient copies each month to supply the membership and meet the other wants of the Association.

For some time it has been felt, by all concerned, that it would be desirable for the Association to own the magazine; the transfer has recently been completed.

It is the desire of the management of the Association materially to strengthen the publication, to add to its attractions, and to make of it more than ever a power in its special field—in conserving our forests, reclaiming the desert, and causing the wilderness and the solitary place to be glad. Our land is the heritage of all the people, living and to come. The hand of the spoiler must be stayed. This heritage must be preserved by wise use and

transmitted, unimpaired, to the generations which must follow us. To this end, the public must be instructed as to conditions actually existing, it must be aroused to the need for action, sentiment must be organized, and measures taken to attain the objects sought; and, in doing this work, the magazine, FORESTRY AND IRRIGATION, must be, more than ever, a potent force.

The strength of the American Forestry Association, actual and potential, lies in its membership. This great and growing body should be materially increased, and its organization should be so improved that every member will become effective. The agitation and education conducted by the Association must culminate in legislation. The system of National forests, bravely begun, must be greatly extended. Not only must public lands be proclaimed as reserves, but privately owned lands, as in the Appalachians and White Mountains, must be purchased and converted into National forests. This necessitates resort to Congress.

And it is in the demand for legislation that the strength of the Association should be most clearly manifested. An instance is at hand. Here is the Appalachian-White Mountain Bill, right, fundamental, essential. Unanimously passed by the Senate, unanimously reported for passage by the House Committee, approved in advance and strongly commended by the President, urged by a multitude of individuals and associations, and openly opposed by none, it to-day hangs trembling on the brink of passage. Yet who can say whether it will indeed become a law? Here such an Association should prove its power. With members scattered from Hell Gate to the Golden Gate and from the St. Lawrence to the Rio Grande, representing every walk in life, every social class, every religious and political faith and almost every type of association, our organization should be so perfect, our *esprit de corps* so complete, and the response of the parts to the whole so prompt, so hearty and so unanimous, that, in an emergency like the present,

and at the call to action, a wave of sentiment, absolutely resistless, could be rolled in from every section of the Union upon the National Capital. In the building up of such an organization, this magazine, as the property of the Association, should be a mighty factor.

But the success of the magazine, like that of the organization, must depend largely upon the membership. It should represent not one man alone, but many; not one geographical point, but the whole country. Let the membership rally round it. Among them are scientific foresters, capable of giving to its pages the weight and dignity which accompany exact knowledge. Let them send their best thought to this magazine. If it cannot, at present, pay, let them remember that much of the world's best work, both in scientific and other lines, is done from higher than mercenary motives. Schools and chairs of Forestry are multiplying. Let them be represented. The readers of this magazine should know what these schools are thinking, planning and accomplishing. Frequent expressions from them in these columns will be helpful to them, the magazine, and the movement. Others who may not be found in the scientific class may yet render substantial help. Popular articles, as well as scientific, have their place. Send them in. Send in news items as well. What is the forest situation in your neighborhood, or in the regions where you have travelled? What have you seen in the way of forest destruction and its effects? What evidence of awakening are visible? What attempts are making to disseminate sound principles as to the preservation of forests by use? If you have seen one or more of the reserves, how do they impress you? To what extent are they solving the problem, and how can their administration be improved?

Again, send in suggestions regarding the conduct of the magazine. Tell us wherein it may be improved. Push its subscription list by pushing the membership of the Association. The

recent call for names of possible members brought a generous response. Let such names continue to come. Send for sample copies of the magazine for distribution. See your friends and request them to join. Let all help, and all will be surprised and delighted at the results.

Finally, there is the financial side. We are engaged in a great work, and such a work cannot be carried on without funds. A few years since, what is now the Forest Service was an infant in arms; now it is a young giant. Why the difference? Energy, enthusiasm, good management, favorable legislation—all these have been factors; but there is another and a mighty one; it is money. The Forest Service now talks in terms of millions, and wealth is potent.

To do effective work the Association needs funds, and needs them badly. For these, too, it must look to its membership. This want they can supply first, by securing new members; second, by becoming, where possible, Sustaining or Life members, if Annual, and, third, by advertising or leading others to advertise in *FORESTRY AND IRRIGATION*. From its advertising pages the modern magazine derives its sinews of war. This publication need be no exception. A reasonable advertising patronage from its membership might easily set it on its feet and, through it, make the American Forestry Association the agency for forest preservation and extension which present needs demand.

The Ohio Over-Flow and the Appalachians—Again the mighty Ohio is out of its banks. News dispatches of January 18 reported the flood to be the greatest the river has known for more than twenty years. "Every town along the river is suffering from crippled communications, limited fuel supply and a shortage of food. Thousands of families have been rendered homeless, and many thousand men are idle because of the enforced shutting down of the factories and other establishments that gave them employment." There was

"almost a panic" at Portsmouth, Ohio. The natural gas supply was cut off, and a number of cities were in darkness because of broken gas mains or flooded light plants. Fifteen million feet of gas were reported as escaping into the river daily. "Service on railroads and traction and city electric lines was generally crippled along the full length of the river." In Manchester, Ohio, a company of militia had to be called out to guard the property of flood sufferers.

The damage in western Pennsylvania was reported at thousands of dollars. "Over 10,000 miners employed in mines along the Monongahela River were temporarily out of employment, and high water at McKeesport, Pa., caused the suspension of several large mills, throwing over 3,000 men out of work for a few days. Hundreds of families in up-river towns were living in up-stairs rooms, and skiffs were used in the streets. Railway traffic was seriously impeded or stopped in West Virginia. Many trains barely escaped colliding with obstructions. Rockwood, Ohio, was completely submerged. The flood at Buckhannon, W. Va., was the worst in the history of the place—and so on.

While it is not claimed that this, and similar disasters, are wholly due to forest destruction, that they are largely due to this cause there can be no doubt. In the economy of the water distribution of a continent the forests on the slopes perform a vitally important function. As is well known, the forest mulch holds back the water deposited by a given rain, and permits it to feed the rivers gradually through a period of weeks or months. With forest destruction this conserving influence is removed, and the waters deposited by rains rush down the slopes as down steep house roofs. Depriving the slopes of the mulch operates like depriving a harness, used in mountain teaming, of its breeching, or a railroad train of its brakes. Disaster is inevitable.

A Step Towards the Solution

The papers which contain the above news contain, also, the report of a call, by a delegation of governors and representatives of governors of affected States, and others, upon the Speaker of the House to urge upon him the importance of using his power to make possible the vote, at the present session of Congress, on the Appalachian and White Mountain Bill—the only measure which, in any effective degree, looks toward the solution of the problem. Governor Glenn, of North Carolina, the spokesman of the delegation, made a powerful plea, covering almost the whole ground, and emphasizing, especially, the futility of local action in a matter essentially interstate, and, therefore, National.

The Speaker listened carefully, and then replied at length. He referred to the brevity of the session, the pressure of public business, the huge appropriations already agreed upon, the far-reaching importance of the bill, the need of careful consideration of such measures and the difficulty, in the circumstances, of securing it at this session, and the ignorance of members regarding the measure, not 10 per cent of them—certainly not 20 per cent—in his judgment, understanding it. He promised the delegation, however, that he would do what he had not yet done, namely, read the bill and the report upon it.

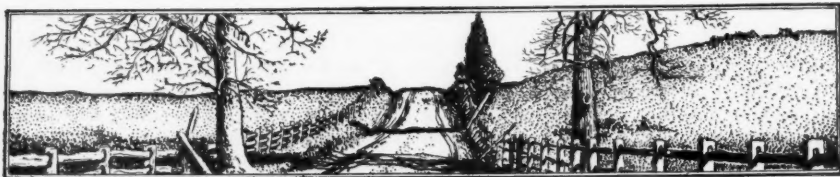
What Each Should Do

The lesson to friends of the measure is this: See that the members of the House do understand it, do grasp its significance, and do exert their every effort to secure its enactment into law. The Speaker holds that he is "but one in 386"; how important a "one," be-

cause of his position as Speaker and dominant factor in the Committee on Rules, his modesty deterred him from stating. Nevertheless, there is force in his suggestion that "there are others" in the House. It is also true that some of these others—some, furthermore, who, because of the connection between their States and the mountains, rivers, industries and investments involved ought to be interested and eager—are apathetic, possibly even adverse. With a few, the old-time dread of National encroachment upon the powers of States still causes hesitation. It has been stated that some may be influenced by certain lumber interests which, nominally favorable to the bill, are secretly hostile, desiring the perpetuation of present conditions until they shall have had opportunity to reap their harvest. Still others have "other irons in the fire."

Work, the Watchword

Secretary Wilson's suggestion that the sections interested make their interest felt is pertinent. Legislation, especially good legislation, does not fall "like the gentle rain from heaven." It comes as the result of work, hard, unceasing, exhaustive work. Some friends of this bill are working like Trojans. Too many, however, are not. The thing to do is to rouse, more fully, the press, the constituencies and the members of the House, and secure a rule whereby this bill may come up for a vote at this session. This done, the coast seems clear. Until it is done let no friend of the measure solace himself that he has done his part, or more; rather, let him, like Winkelried, feel "As though himself were he
On whose sole arm hangs victory."



NEWS AND NOTES

Black Walnut Sound After Fifty Years

Just before coming to Washington in December, Hon. Charles F. Scott, Congressman-at-large from Kansas, took a drive with his family out to the old homestead, a few miles distant from Iola, Kansas. It was there that Mr. Scott's father settled in 1857, and built his house of black walnut logs hewn from the forest. As soon as a saw-mill was built in the community black walnut boards were secured with which the house was sided. Mr. Scott was gratified to find the house standing intact, the siding in an excellent state of preservation, and the large logs almost as sound as the day they were put in the wall.

A Unique Forestry Man

M. Rothkugel, forester to George Craig & Sons, who own a large tract of timberland on the east fork of the Greenbrier in West Virginia, had on exhibition at the meeting of the American Forestry Association a bas-relief map of the timber tract in papier mache, scale 1 inch to 100 rods. The tract contains about 20,000,000 board feet of hardwoods, and the density of the stand is shown by colors. The map gave evidence of skill in its preparation, and, through its striking delineation of the water courses and comparative altitudes, will be of high value to the owners of the tract in conducting lumbering operations.

A New Firm of Foresters

"Management of Forest Lands" is the title of an interesting circular announcing the firm of Chittenden & Patterson, consulting and contracting foresters. The members of the firm, Alfred K. Chittenden and Allan B. Patterson, are graduates of the Yale Forest School, and in the five years they have been identified with the Forest Service their record for accomplishment has brought to them wide experience through assignments to important projects. In ability and training they stand in the foremost rank of

American foresters. Their office is in Baltimore, in the Law Building, the headquarters of several lumber companies, among them the one directed by former Governor E. E. Jackson, a member of the Maryland Board of Forestry.

Personal Changes

Mr. Alfred Akerman, formerly State Forester of Massachusetts and at present State Forester of Georgia, has been given charge of the Department of Forestry which has just been inaugurated at the University of Georgia. Mr. Akerman is a graduate of the Yale Forest School and was at one time connected with the Forest Service.

Mr. J. J. Levison, another Yale Forest School graduate, and formerly of the Forest Service, has been appointed a county forester of New York to investigate the watershed conditions in the Catskill Mountains.

Mr Gaskill Resigns

The resignation on January 1 of Alfred Gaskill as a member of the Forest Service, to engage in private forest work is an important change—one of the changes that must be expected to provide foresters in private life. This demand must be expected to grow with the knowledge by timber owners of the value of correct forest management. Mr. Gaskill is a graduate of Biltmore, and continued his studies in France. He was a pioneer in the Service, and through studies which entailed wide travel and his numerous contributions to the press, is one of its best known men. He contemplated establishing an office in one of the Eastern States, but a recent invitation to engage in State work has unsettled his plans for the present.

The marriage on December 27 of Miss Evelyn L. Price to Mr. John Philip Wentling was a happy surprise to their large acquaintance. Mr. and Mrs. Wentling will make their home at Mont Alto, Pa., where Mr.

Wentling is in charge of the State Forest Academy and other forest work on the State reserves.

Reserve Area The Forest Service reported, on Dec. 31, a grand total of 138 forest reserves, with an area of 127,154.371 acres. This equals, approximately, the combined areas of all the States east of Ohio and north of old Virginia.

North Carolina in Line In his message to the State Legislature, Gov. Glenn, of North Carolina, strongly commended the Appalachian—White Mountain bill. The legislature passed the following resolution:

"That our Senators and Representatives in Congress be requested to urge the passage of bills pending in the House of Representatives having for their object the establishment of forest reserves in the Southern Appalachian and White Mountains and to use their best efforts to secure the passage of this bill, and that His Excellency, Governor R. B. Glenn, be requested, if possible, to attend the meeting of the governors of the several States interested in the passage of this bill to be held in the city of Washington."

Press Notices *The Springfield Republican* of Dec. 23 devoted almost a page to an article entitled "The Care of the Forests." It characterized our National Forest Service as "a tremendous development," and called attention to the fact that "the Forest Service has under its control property more valuable than that of the War and Navy Departments combined."

Speaking of the request of the Forester for a loan of \$5,000,000 with which to develop the forest reserves, the *Boston Post* declares: "It will be money well expended. * * * The money should be forthcoming. It is no greater than the cost of a single battleship."

In the same connection it says: "The first thing to be done, of course, is to pass the bill setting apart the

White Mountains and the Southern Appalachians as National reserves. This is an extraordinary and critical affair. If it does not receive attention at once, the American people will lose a great patrimony.

Speaking of forest reserves, the *Butte (Montana) News* says:

"The opponents of the forest reserve system, many of whom oppose merely because the plan is a Roosevelt one, are not making much headway. The Western man who has seen the green mountains devastated, stripped of their magnificent trees until they resemble the path of a cyclone, knows it was time to call a halt. * * *

"Here in Montana we have an abundance of dormant water-power available either for local manufactures or for electric transmission. Each of these sites is a separate argument for the forests. All this means nothing to the corporation whose sole desire is to get the lumber to market. Forestry does not appeal to a corporation; it is too remote. There is no inducement to plant forests to be cut in 60, 80 or 100 years. * * *

"All arguments, the economic welfare of the country, the protection of unspoiled wilderness parks, the local benefits which flow from the visitors attracted by natural beauties, are on the side of the forest reserve. It is in the public interest; there is no opposition except on selfish grounds. The Montana legislature should speak in this matter with no uncertain voice, and endorse the splendid policy of the president which is preserving the forests from the despoiling hand of the ruthless corporations."

Educational Notes During the past summer plans have been maturing for the establishment of a four-years' undergraduate course in forestry at the Pennsylvania State College, State College, Pa. The project has assumed definite form since Professor Hunt, formerly of Cornell, became dean of the college. Dr. B. E. Fernow has been asked to take charge of the course. According to *Science*

he has accepted. An assistant professor of forestry is also to be appointed. A new building will probably be erected for the department.

Dr. C. A. Schenck, director of the Biltmore Forest School, who went to his former home in Germany to spend the holidays, is expected home early in February. In his absence, Mr. Alfred Akerman, professor of forestry in the University of Georgia, has been conducting a series of lectures at Biltmore on forest policy, and Doctor Sioussatt, of The University of the South, on economics.

**Practical
Lumbering
for Yale**

The Yale Alumni Weekly announces that:

"Members of the Senior Class of the Yale Forest School will leave New Haven on March 4 to spend the last four months of the college year in the woods. The details of this trip have just been completed and announced by Director Henry S. Graves. It is part of the new course in lumbering; endowed by the National Lumber Manufacturers' Association, and promises to be the most extensive yet taken by any class of the School.

"The camp of the foresters will be on the land of J. W. White, a Southern lumberman, in Shannon and Carter counties, Missouri. These counties embrace the Ozark Mountain country, a high and healthful region. Part of the time will be spent by the students in Grandin, Carter county, studying saw-mill conditions, and the remainder of the time will be devoted to work in the woods.

"The camp will be situated seventy miles northwest of Grandin in the heart of a Yellow Pine stand of timber, where lumbering operations are being carried on. Mr. White has arranged for bunk houses to be constructed for the men, which will be used by the lumbermen upon the departure of the foresters. Cooks will be employed by the students, and a committee from their numbers will regulate the commissary phase of the camp life.

"The work will be under the direction of Mr. H. H. Chapman, M.F., and

Mr. R. C. Bryant, F.E., instructors in the Yale Forest School, and is intended to acquaint the students with the entire conduct of large lumbering operations. The first half of the term will be devoted particularly to studies pertaining to lumbering, such as logging camps, their location, equipment and maintenance; logging methods, scaling, handling of logs to and at the mill, character and capacity of saw-mills, grading of lumber, piling and seasoning of lumber, business conduct of the office, etc.

"The latter half of the term's work will include instruction in preparing plans for the management of forest lands, embracing topographic and land surveying, preparation of forest maps, the location of timber of different types, waste lands, swamps, burns, timber estimating and plans of lumbering from a technical forester's point of view. It is expected that the class will make a forest map of a tract covering between 40,000 and 50,000 acres, which will later be used by the company in lumbering the forest. Henry Gannett, chief of the U. S. Geological Survey, will have charge of the work in mapping.

"The students will also receive instruction in forest insects and animals, trail building and the packing of horses.

"The winter term for the senior foresters will close February 28, and they will start into the woods on March 4. The spring term will close about June 20, but the men will not be compelled to return to New Haven to receive their diplomas.

"Heretofore, the spring work in the woods has not begun until the middle of April, but under the new lumbering course, it is planned to do away with the usual individual trips of the men into lumber camps between Thanksgiving and Christmas, and combine all the field work of the Senior year into the four months of the spring term."

Mr. R. C. Bryant recently resigned from the Forest Service to accept a position at Yale, where his work lies in the line of practical lumbering. Mr.

Eugene Bruce, lumberman of the Forest Service, left for New Haven, January 18, to give a course of lectures on lumbering operations. The action of the National Lumber Manufacturers' Association in making its endowment is bearing excellent fruit.

Age and Youth

It was noticeable that the audiences at the annual meeting of the American Forestry Association represented, in general, two extremes of age. On the one hand, there were men, old in years, but young in enthusiasm—men whose span of life has allowed them to see the transition from a time of prodigality to a time almost of penury in our forest resources. Dr. Hale, whose interest in forest preservation intensifies with each succeeding year, himself has known the day when the forests of New Hampshire furnished every spar for four great naval powers, where now she can furnish none large enough for a single foremast. Mr. Kelsey, whose whited beard belies his boyish blue eye, has seen how the perennial streams of his youth have been changed to intermittent wet-weather gullies, through the destruction of woodlands needed for protection cover. Colonel Harvey, Mr. Cutler, Colonel Fox, of New York, and many others, whose zeal has but grown with their experience, have learned from the past, and are now planning for the future. They represent a potent working force, for their convictions are based on things they personally have found to be true. On the other hand, there were present many younger than Dr. Hales' "thirty-two"—alert young fellows of the Forest Service—to whom the solutions of present and future problems are being entrusted. They are looking forward with an equal enthusiasm, and are pledging themselves to the great work which the counsels of the older men tell them is so important and so far-reaching in influence. To one with an introspective mind there was an object-lesson of no little force. It was as if age and experience pointed the way

which resolute youth should have the strength and courage to follow.

Forestry at New Orleans Meeting

The Yellow Pine Manufacturers' Association met in its second annual convention at New Orleans, January 22 and 23. The sessions were held in the New St. Charles Hotel, with President John L. Kaul in the chair. Forestry had no little part in the meeting, since two of the five scheduled addresses bore a close relation to that subject. Dr. Henry S. Graves, of the Yale Forest School, read a paper on "The Relation of Forestry to Lumbering," and Dr. W. C. Greer, of the Forest Service, had for his subject "Possibilities of Pine Wood Distillation."

Prof. Mason's Change

Professor Silas C. Mason, for several years professor of horticulture and forestry at Berea College, Kentucky, has resigned to accept a position in the Division of Plant Life History in the Bureau of Plant Industry. Professor Mason will be engaged in Washington the latter part of January, but will soon proceed to Arizona to make a field study of plants of economic importance in the semi-arid and arid regions.

Practical Work at Berea

Professor Mason has done good work at Berea. Beside organizing and conducting an excellent preparatory course in forestry, he has prepared a working plan for the College domain of 4,000 acres of woodland, and undertaken investigations of local forest problems. Fifteen families, located as tenants on the tract, have been organized into a fire warden force. Mature timber is being cut, sawed at the college saw-mill, dried at the college dry-kiln, and in part manufactured at the college, in the wood-working department. The ceiling of the new \$60,000 chapel, in massive oak beams and handsome panels, is entirely of home material and manufacture, and is strikingly handsome.

(Continued on page 36)

AMERICAN FORESTRY ASSOCIATION

Twenty-Fifth Annual Meeting was Held at Washington, D. C.,
January 9, 1907. Account of the Meeting and Resolutions

A QUARTER of a century of progressive work in a great cause was celebrated in the twenty-fifth annual meeting of THE AMERICAN FORESTRY ASSOCIATION held January 9, 1907.

MORNING SESSION.

The meeting was called to order at the New Willard Hotel, Washington, D. C., at 10 o'clock a. m. by Hon-James Wilson, Secretary of Agriculture, and President of the Association, who delivered the opening address, which is printed on another page of FORESTRY AND IRRIGATION. He was then called away by the official duties of his position as Secretary of Agriculture. Col. Wm. S. Harvey was asked to preside in the president's absence, and in the course of regular business appointed the following committees:

RESOLUTIONS: Mr. George W. Woodruff, chairman; Mr. Philip W. Ayres.

REVISION OF BY-LAWS: Mr. Herbert A. Smith, chairman; and Mr. James H. Cutler.

NOMINATIONS: Mr. George K. Smith, chairman; Mr. William L. Hall, and Prof. H. S. Graves.

The report of the Board of Directors of the Association was read by the Secretary, and upon motion by Judge Warren Higley was adopted and ordered filed.

The chairman suggested that the Association give its hearty approval, by resolution, of the recommendation of President Roosevelt, in his special message to Congress of December 17, that \$5,000,000 be loaned for a period of 5 years to the Forest Service, to be expended in developing the resources of the reserves. Upon motion of Judge Warren Higley, of New York, after

remarks by Mr. George H. Beaman and Mr. Philip W. Ayres, it was unanimously voted that the Association approves and urges Congress to carry out the recommendation of the President.

On motion of Mr. E. A. Start it was voted that the executive committee be instructed to send invitations to the Governors of those States directly concerned with the creation of the proposed Eastern forest reserves, to the governors of other states that might choose to interest themselves, and to any delegates, or other persons in association with the governors, to visit Washington January 18 to express to the Speaker of the House of Representatives the sentiment of the people of their states on the proposed change.

The report of Treasurer, read by Secretary, was, on motion, received and filed.

Interesting addresses were given by Dr. Edward Everett Hale on the need of forest preservation; by Mr. J. B. Blades, of Newbern, N. C., voicing the strong desire of the people of his section for the Southern Appalachian Forest Reserve; by Prof. Henry S. Graves, director of the Yale Forest School, on the progress of forest education; by Mr. Enos A. Mills, of Colorado, on the marked change in sentiment in favor of the forest reserves by the people of the West upon a better acquaintance with their purposes and administration, and by Mr. George K. Smith, secretary of the National Lumber Manufacturers' Association, on the coöperation in forest work by the lumber associations.

Mr. James W. Pinchot was called upon by the chairman to make an address. He expressed his great gratification at the notable progress that has

been made in forestry in the past decade.

The meeting then took a recess until 2:15.

AFTERNOON SESSION.

The first speaker was Mr. J. S. Palmer, secretary of the National Slack Cooperage Manufacturers' Association, who pointed out the growing scarcity of woods suitable for the manufacture of slack cooperage, or cooperage that need not be water-tight, such as barrels and packages for flour, sugar, etc. He told of the practical exhaustion of woods suitable for his products, and said that the creation of the Southern Appalachian Forest Reserve would conserve the woods needed and prevent the practical extinction of an industry that now depends on a prolonging of the supplies which the Appalachians afford.

Col. Wm. F. Fox, Superintendent of the Forests of the State of New York, spoke of the excellent results of fire protection on the forest lands of New York State. The success that has attended the Empire State forest fire law has been due to the watchfulness of the fire wardens, and the invariable arrest, conviction, and fine of those who violated the fire law that forbids the burning of brush or waste land in the closed season. Loss from forest fires has been reduced to a minimum, and that at a very slight cost.

Judge Warren Higley, of New York, spoke of the successful administration of New York's forest lands, the most extensive held by any State; and he outlined the policy under which those lands are annually added to.

Dr. B. E. Fernow's report on "Financial Results of Forest Management" was read by Mr. Philip W. Ayres, Forester for the Society for the Protection of New Hampshire Forests. The paper used the forests of Prussia and Saxony as examples of the wealth that accrues to the State through a scientific and business-like management. He pointed out that any reserves that might be set aside in the United States and managed on the

same principles could be expected to give even better returns.

A very interesting and instructive talk was given by the Hon. L. A. Thurston, chairman of the Board of Agriculture and Forestry, Hawaii, on the "Progress of Forestry in Hawaii." He spoke briefly of the forest conditions of the islands, where the windward side of the high mountains receive hundreds of inches of rainfall annually, where in the twenty-eight days of last February over 80 inches fell, and where, on the lee of the mountain, arid or semi-arid conditions prevail, and irrigation is carried on by canals, which carry the water from the streams of the rainy to the reservoirs on the dry side of the mountains. Forests are absolutely necessary to conserve the heavy rainfall and to prevent the destructive run-off. A hopeful feature of the Hawaiian situation lies in the fact that private individuals have joined with the territorial government to set aside their lands for reserves.

Mr. S. T. Kelsey, a civil engineer, who is thoroughly familiar with the Appalachian Mountain system, gave an excellent epitome of the relation of the Blue Ridge to the watersheds of all the southeastern portion of the United States east of the Mississippi and south of the Ohio. He showed how denudation of the forested slopes of the Appalachians makes floods in time of heavy rains and protracted drought where the forest soil had before held the moisture to be gradually given off in times of little rain. He showed that water power plants could not depend on steady flow, that floods greatly damage industrial and farming industries, and that torrential streams not only erode good soil, but deposit that soil in the form of silt to choke up navigable rivers and harbors.

Mr. George Ward Cook, of Haverhill, Mass., presented an important point of view that had a bearing on the proposed White Mountain National Park. He confined his text to the influence of the Merrimac River, and to

the great loss that would be sustained if its flow should be lessened by a cutting off of its sources in the White Mountains, because of deforestation. The Merrimac turns more millions of spindles, representing more millions of capital in manufacturing than any other river in the world, and employs, moreover, a vast army of operatives. This gives an argument for the White Mountain Park that is not fanciful, not sentimental, but wholly practical and commercial.

Mr. Alfred Gaskill spoke on the necessity of securing a more vigorous expression from the people of New England and the Southern Appalachian States that the reserves are wanted.

Mr. Gifford Pinchot's definition of "What the Forest Service Stands For" which was the principal speech of the afternoon session is printed on another page.

The following officers were elected for the ensuing year: President, Hon. James Wilson, Secretary of Agriculture; Vice-Presidents, Dr. Edward Everett Hale, Chaplain of the Senate; Mr. F. E. Weyerhaeuser, of the Weyerhaeuser lumber interests; Mr. James W. Pinchot, Dr. B. E. Fernow, Consulting Forester; Mr. John L. Kaul, of the Kaul Lumber Company; Treasurer, Mr. Otto Luebker, of the American Audit Company; Board of Directors, Secretary James Wilson, Mr. Wm. L. Hall, Chief of the Office of Forest Products, Forest Service; Mr. George P. Whittlesey, Mr. James H. Cutler, Mr. Rutherford P. Hayes, Prof. Henry S. Graves, Director of the Yale Forest School; Mr. F. H. Newell, Chief Engineer of the Reclamation Service; Mr. Gifford Pinchot, Forester of the Department of Agriculture; Mr. N. J. Bachelder, Mr. Albert Shaw, Editor of the *Review of Reviews*; Mr. W. W. Finley, President of the Southern Railway; Mr. George K. Smith, Secretary of the National Lumber Manufacturers' Association; Mr. Wm. S. Harvey, chairman of the Committee on Forestry and Irrigation of the National Board of

Trade; Mr. H. A. Pressey, and Mr. George Foster Peabody.

Resolutions

Before adjournment reports were received from committees on resolutions, on affiliation with other associations, on revision of by-laws, and on nomination of officers. The resolutions presented were all adopted as follows:

Whereas, the bill for National forest reserves in the Southern Appalachian and White Mountain regions has passed the United States Senate without dissent; has been unanimously reported to the House of Representatives from the Committee on Agriculture; and its passage has been repeatedly urged by the President in messages to Congress; and

Whereas, if the bill does not pass at the present session of Congress, time will elapse in which denudation will continue unchecked, with irreparable damage to the water powers and to the timber and agricultural interests of the country, both North and South; and

Whereas, the price of land and timber is so rapidly increasing that action cannot again be so effective as now, therefore,

Resolved, That the American Forestry Association instruct its Executive Committee to appoint a suitable delegation to present the above facts to the Honorable Speaker of the House of Representatives, in order that this measure may come before the House for action at the present session;

Resolved also, That each member of the Association present in Washington is requested to confer with his Representative to the same end, and that each member of the Association throughout the country is requested to write promptly to his Representative asking him not only to vote for this measure if it comes up, but also to see that it does not fail to come up for action at this session of Congress.

Whereas, the welfare of all the people is injuriously affected by the increasing scarcity and cost of wood materials, and much of their savings throughout the country are invested in various enterprises dependent on water powers which would be ruined by the destruction of the forests.

Resolved, That this Association warns investors irrespective of locality, of the danger of loss on their investments unless the Government safeguards forest conditions.

Whereas, the President of the United States has recommended to Congress the loan to the Forest Service of five million dollars as working capital for the development of the forest reserves, and has shown the necessity for this fund in order to introduce upon the reserves a proper system of forest management.

Resolved, That the American Forestry Association urges Congress to make this loan.

Resolved, That we again urge upon Congress the repeal of the timber and stone act, so long a source of fraud and loss to the Government, and the substitution thereof of legislation providing that land which is more valuable for timber than for other purposes shall hereafter not be subject to entry of any kind.

Resolved, That we heartily approve of the action of the manufacturers and users of forest products of the United States in asking Congress to appropriate \$200,000 to establish a wood-testing laboratory in connection with the Forest Service, and we earnestly request the Committee on Agriculture

of the House of Representatives which is now considering the Agricultural Appropriation Bill to give favorable consideration to this item.

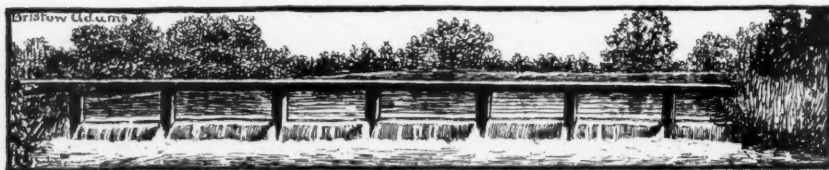
Resolved, That the appreciative thanks of this Association are due and are hereby given to Gifford Pinchot, Chief Forester of the United States, for his unselfish and untiring service in behalf of forestry in this country. The results of his efforts are now becoming apparent, and we, who know the quality of his work and spirit, express our confidence in his administration of the splendid service he and his associates have built up.

The following resolutions on the death of Samuel Spencer were adopted by the Board of Directors at their meeting immediately preceding the meeting of the members:

Whereas, Death has removed from our membership and directorate Mr. Samuel Spencer, late President of the Southern Railway;

Resolved, That we recognize in Mr. Spencer not only an industrial leader and developer of conspicuous success, and a railway organizer and executive of first rank, but a constant and consistent friend of the forests; a man who was intimately familiar with the forest situation in the United States; who, with breadth and foresight, saw the necessity of preserving, by wise use, this essential resource, and stood ever ready to employ his high office in the furtherance of this great cause;

Resolved, That we deplore his untimely and tragic end, and hereby convey to his family and friends our sincerest sympathy with them in their great loss.



THE ADDRESS OF WELCOME

Remarks Made by Hon. James Wilson in

Greeting the Delegates to the Annual Meeting

SECRETARY of Agriculture Wilson, President of the American Forestry Association, made an extemporaneous address of welcome to the members present at the Twenty-Fifth Annual Meeting of the Association. He spoke as follows:

The Association has been doing good work along forestry and irrigation lines in this country of ours, and it's quite high time that other auxiliary bodies should know what the Association is trying to do. We have something like one hundred and thirteen millions of acres in forest reserves, and possibly forty or fifty million acres more to be devoted by the Federal Government for the purpose of growing trees against the time of need. Most of our reserves are in the far West, and the wood that may be had from them in coming years will be needed, most of it, beyond the Missouri; much will be used on the far Pacific coast, leaving the great demands of the country east of the Missouri River unsatisfied.

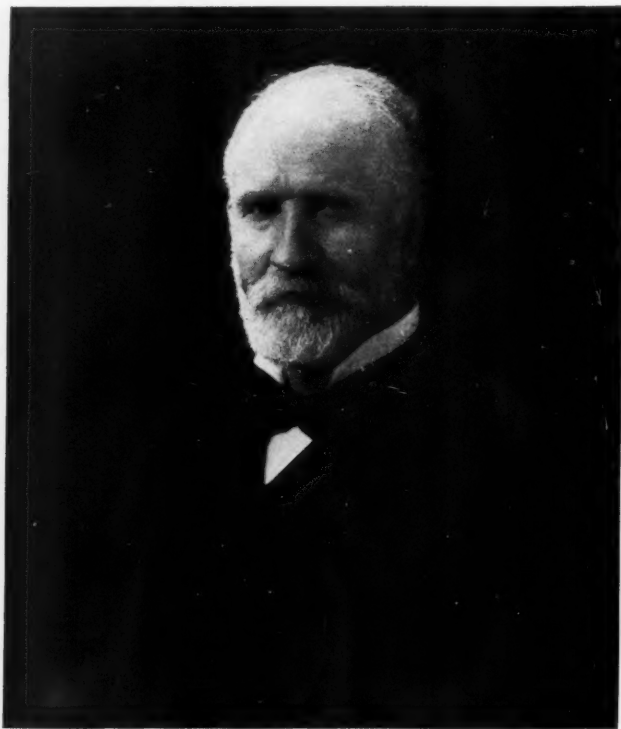
I do not think our people are generally aware of the rapidity with which we are overtaking our wood supply. The industries of the country are beginning to feel it; those who buy wood of any kind are compelled to pay much higher prices for all kinds. The very latest illustration of this that has come to my attention occurred last week. I was visiting the distilleries for the purpose of ascertaining what products they make and how they make them, in order that I might the more intelligently execute the pure food law. And there I found that barrel staves, to make barrels, are going up, up, up, and will continue to go up because they are selling all the oak

wood way down in Arkansas, and when they get through there I do not know where they will go for staves, stave wood, etc. But that doesn't make so much difference; the temperance people may possibly get their work done, and then they may be able to make a new start along moral lines. We who have immediate charge of the Federal forests have problems that have never presented themselves before to foresters anywhere. You can plant a seed and grow a tree, and take a spade and dig it up, and plant it again, and that tree will grow; that has been done. We need not only to plant the trees and acres of trees, and thousands of acres of trees, but we must ascertain how to plant a hundred thousand acres of trees every year. That is as high as it is necessary to go this morning. But it would take ten years to plant one million acres, and even at that rate we wouldn't be increasing this forest of ours fast enough.

I wish the States of the Union would give a little more attention to what concerns themselves, and not look so much to the Federal Government to have everything done that is done along lines of this kind. There is no awakening in this country of such great moment and necessity as the awakening of the States to do what they might do for themselves without calling upon the Federal Government. It is best to speak frankly. You are not likely to get an appropriation for the White Mountains; or for the Appalachian range either, unless the States most interested work harder. We people have been trying, arguing, giving facts, begging, pleading for years, and have not yet succeeded. I sometimes

wonder why the people in grand old New England cannot take a firmer hold on that White Mountain forest reserve proposition. You have got large-minded men enough and strength enough, if you would only do as you have been doing when you built up that splendid part of the United States; just depend more on yourselves and work harder and you will have the

White Mountain forest reserve. And the people in the Southern States should be thinking about that, too, if they want to save the waters at their sources in the Appalachian Mountain chain. The prospect of getting Congress to buy that Appalachian reserve is not good, unless those most directly interested get together and forcibly ask for what they want. I have



SECRETARY OF AGRICULTURE JAMES WILSON,

Who, as President of the American Forestry Association, Delivered the Opening Address at Its Twenty-Fifth Annual Meeting

never known a time when all the Southern people were demanding that. I have always thought if their Representatives in Congress would unanimously ask to have that thing done in their locality that they would have had it done long ago. There are many broad-minded men in Congress from

the South, but they have not quite done what they might have done along that line, and year after year the possibility of getting the work done is less and the necessity for getting forest reserves in the Appalachian range is more and more urgent.

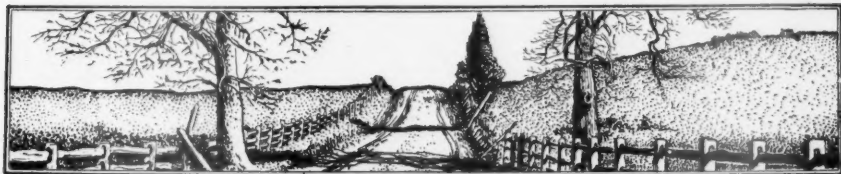
Let me call your attention to some

mighty movements that are going on in the United States with regard to the proper handling of moisture. You are all entirely familiar with what those Government engineers under Dr. Newell are doing with regard to the Reclamation Service; that's splendid work—fine. But there is a movement dealing with moisture more extensive than that going on in the forest reserves all over the Western country, to my certain knowledge, and to a considerable extent, in other parts of the United States, of getting rid of surplus moisture by draining the damp lands that are surcharged with moisture. The best lands of the country are lands that need draining. Go into the southern part of the United States, and take that great swamp down there in Florida; that's pretty nearly the only good land there is in Florida; just that great, big swamp; and so it is with all the swamps all over the country. Not only that, but take the farms where portions are too damp to grow crops, where the water is too high to permit successful agriculture. There the individual farmer is at work along this line. I recollect a few years ago Congress turned over a good part of the Arlington estate to our Department to see whether we could not do something for it. We looked it over and found that it was saturated. The water was so high up that plants could not grow. We laid car load after car load of tiling in that same land. We lowered the water table; we began planting crops and plowing them under for a couple of years, and the third year we could get 65 bushels of corn to the acre. And that's a simple illustration. Now all over the prairie country that is being done. One-fourth is being added, and

will be added in a few years, to the productive area of those great States by tile drainage. That is a wide movement going on. Now the people are doing that themselves. They are adding millions of dollars in value to those States, and the whole United States needs a movement of that kind to get rid of the surplus moisture in the wet parts of farms—the most valuable parts.

Now I know of nothing, of course, that this Association can do better than what it is doing now; to agitate the American people on these lines. Let them know what the proper place for water is after it falls from the clouds—after the rainstorm is over. That is one of the great problems. Where to plant trees and what trees to plant is another great problem. We are coming to the time in the life-time of men before me when we will have to send all over the world to bring woods to us, because we are destroying them just as fast as we can destroy them. I think I may say, however, that valuable progress is being made along the lines of economy in the uses of our wood, and in the application of soft woods to uses confined to heretofore hard woods.

But I am only here to make you all welcome. We are glad you are here and hope you will enjoy yourselves. There is work being done in the United States, whether in Congress or out of it, whether by State legislation or by private individuals, that is of much value, and very little as valuable as the work you are doing; and so I make you welcome. I hope you will enjoy yourselves while here in this beautiful Capital City of ours, and that you will reach your homes, when you get through, in safety and comfort.



A YEAR OF PROGRESS

As Shown by the Annual Report of the Board
of Directors of the American Forestry Association

IN the entire history of the forest movement in the United States, the present year has been the most notable. The American Forestry Association has materially increased in numbers, financial strength, and general activity; the Forest Service has moved forward with giant strides, new States have established foresters or instruction in forestry, States which had already made beginnings have extended their work, and important legislation in the interest of forestry is now pending before Congress.

On June 1 the National office was moved to 1311 G street northwest, and established in comfortable quarters, since enlarged. A force of from five to six workers has been engaged during the year, especially in pushing the membership campaign and handling the office correspondence.

The growth of the American Forestry Association during the past year is indicated by the following figures:

As shown by the Treasurer's books, the membership at the date on which the last annual report was made was 3,094. This number was reduced as follows: Resignations (6 of these advancing to Life and 23 to Sustaining membership), 216; deaths, 41; dropped for non-payment of dues, 67; not found, 16; total, 340; remainder of former members retained, 2,754.

New members have been added as follows: Life, 67; Sustaining, 47; Annual, 2,675; total new members, 2,789.

The sum of the former members retained (2,754) and of the new members admitted (2,789) is 5,543, a growth of 79.1 per cent. The total receipts from the new members were \$13,225. The cost of this membership

campaign, including the printing and mailing of 207,505 invitations, postage on same, copies of Forestry and Irrigation (purchased from Forestry and Irrigation Publishing Company at \$1.17 per annum for each member thus secured), and such portion of the office pay roll as was estimated to be properly chargeable with this work, was \$9,929.09. The excess of receipts over expenditures was, therefore, \$3,295.91.

Against these figures may be placed the following for last year:

New members admitted: Life, 13; Sustaining, 7; Annual, 1,746; total, 1,766; receipts from new members, \$5,067; invitations sent out, 55,000; expenses of membership campaign, \$3,539.68; excess of receipts over expenditures, \$1,527.32.

During the year the Association has again given special attention to the promotion of legislation looking to the establishment of National forest reserves in the White Mountains and the Southern Appalachians. The amalgamated bill recommended by this body at its last annual meeting has unanimously passed the Senate of the United States, and, with equal unanimity, has been recommended for passage by the House Committee on Agriculture. The President has strongly urged this legislation, and a majority of members of the House of Representatives are understood to favor its enactment. Failure at this session of Congress must mean the loss of the ground already gained in legislation, and the carrying forward of the process of forest destruction to a point which, in portions of the regions involved, will make later action by Congress unavailing. We therefore urge upon all friends of the forest, and of

the interests tangent thereto, immediate, united, and tireless effort to insure the passage of the bill at the present session of Congress.

The promotion of legislation for the establishment of a wood testing laboratory in connection with the Forest Service has also received and is still receiving attention by the Association in connection with other associations concerned with the manufacture and use of forest products.

The large prospects at the beginning of the year for acquiring and applying a knowledge of the means whereby our forest interests will best be conserved have been fully realized; and with this realization have developed, for the year to come, still larger opportunities for administration and investigation.

The record of work accomplished by State forest officers, State and regional associations, the forest schools, and the National Government is most favorable.

The largest accomplishment of the year has been the application of conservative forest management in the administration of the National forests, now comprising an area of over 122,000,000 acres exclusive of those in Alaska and Porto Rico.

The receipts from sales of timber during the calendar year aggregated \$386,458.86. Prices have a gradual upward tendency, as high as \$5.53 per thousand having recently been received. For settlement of timber cut in rights of way, etc., \$12,008.72 was received; for trespass, \$42,320.29; for grazing, \$551,528.49; and for special privileges, \$11,868.56. Thus for the first full year under technical forest management the reserves yielded revenues exceeding a million dollars. But far greater than the revenue, secured without injury to the future value of the reserve, is the demonstration that "forest reserve resources are for use of the people and no privileges will be denied unless their exercise materially interferes with reserve interests."

The institution of a charge for grazing on the reserves, with the adoption

of regulations to prevent damage to the range, and the satisfactory allotment of the range, both between the cattle and sheep owners and between individual owners of the same kind of stock, were important accomplishments.

The planting of open places in the reserves—a large task—has been begun in the establishment of six large planting stations, in Nebraska, Colorado, New Mexico, Utah, and southern California, where about five and one-half million seedlings are growing. Two more large stations are projected, and plans have been made for the establishment in the spring under the care of forest rangers, of 100 or more smaller nurseries, to secure stock for local planting. One thousand acres are to be planted to trees on the reserves the coming year.

The President, in his special message to Congress, transmitted December 17, said:

"The money value of the National forests now reserved for the use and benefit of the people exceeds considerably the sum of one thousand millions of dollars. The stumpage value of the standing timber approaches seven hundred million dollars, and, together with the range and timber lands, the water for irrigation and power, and the subsidiary values reaches an amount equal to that of the National property now under the immediate control of the Army and Navy together. But this vast domain is withheld from serving the Nation as freely and fully as it might by the lack of capital to develop it. The yearly running expenses are sufficiently met by the annual appropriation and the proceeds of the forests. Under the care of the Forest Service the latter are increasing at the rate of more than half a million dollars a year; the estimate of appropriation for the present year is less than for last year, and it is confidently expected that by 1910 the Forest Service will be entirely self-supporting. In the meantime there is the most urgent need for trails, fences, cabins for the rangers, bridges, telephone lines and other items of equip-

ment, without which the reserves cannot be handled to advantage, cannot be protected properly and cannot contribute as they should to the general welfare. Expenditures for such permanent improvements are properly chargeable to capital account. The lack of reasonable working equipment weakens the protection of the National forests and greatly limits their production. This want cannot be supplied from the appropriation for running expenses. The need is urgent. Accordingly, I recommend that the Secretary of the Treasury be authorized to advance to the Forest Service, upon the security of the standing timber, an amount, say, \$5,000,000, sufficient to provide a reasonable working capital for the National forests, to bear interest and to be repaid in annual installments beginning in ten years."

The railroads, mine owners, and other large users of timber products have manifested unprecedented interest in studying and applying forestry as it will best serve their varied needs. The treating plants in all parts of the country are overrun with orders, and the present number of plants, about 40, is being rapidly increased. Notable advance has been made in methods of treatment, so that open tanks are being used in place of expensive and complicated retorts. Tests of timbers in large sizes are of the utmost value to engineers and architects, making it possible to economize in the use of high-priced lumber for structural purposes.

Studies of the requirements and adaptability of woods for specific uses promise a saving in the substitution of new woods. Further economy has been found possible in the use of sound dead and down timber on the forest reserves.

Logs are being cut farther into the tops of the trees, and more and more is full utilization being secured through care in sawing and the manufacture of by-products. This is a source of great hope for the future.

The lumbermen and the Forest Ser-

vice have been brought into closer touch through coöperation in compiling a report seeking to assist in the standardization of grading rules, and detailed, classified statistics of forest products.

Experiments in turpentine have shown that the economy effected by the cup-and-gutter system may be increased by reducing the wound made in chipping. Trees which are properly chipped by the new method gain redoubled life without loss in annual yield, and remarkable saving results.

Increased activity in forest planting has resulted from renewed confidence based on a better knowledge of the proper trees and planting methods to be used to insure success. Especially to be noted is the fact that larger areas than ever before are planted by railroads and other large interests to supply their own future needs, or by capitalists for commercial returns.

By the organization of a systematic campaign for forestry by the Federation of Women's Clubs, and enlargement of the educational work of the Forest Service, the dissemination of information through lectures and the press has been more widespread than ever before.

FORESTRY IN THE STATES.

Most encouraging are the reports from the score of States which have forest officers.

New York still leads in the area of State forest lands, aggregating 1,500,000 acres, situated mainly in the Adirondacks. Efficient patrol has been maintained, and over 500,000 trees are planted annually in the restoration of denuded areas. The lumber statistics gathered by the Superintendent of Forests are remarkably complete.

The reserve lands of Pennsylvania now aggregate 820,000 acres in several detached bodies. The eight State nurseries have been doubled in size in the past year. Last spring 160,000 white pine seedlings were set out. Under the direction of the State Forester, improvement cuttings and the removal of mature timber are conducted.

In Maine, the coöperation between the land agent and forest commissioner and the professor of forestry at the State University has carried to success several important projects.

Farmers' institute addresses are a leading feature of the forest work in Mississippi. The experimental nursery, located at the State Agricultural College, with the exception of the one at Biltmore, possibly the only one in the whole South, is counted on to aid the culture of both native and introduced trees.

Nebraska established two experiment stations the past year, one at the State University at Lincoln and the other at North Platte. The latter is one of nine stations in different States, which coöperate with the National Forest Service. Progress is shown in planting, in forest lectures before farmers' institutes and under the auspices of women's clubs, and in field studies.

In Iowa an increased demand for information, resulting from the study of State forest conditions in 1905, was met in part by lectures delivered by the State College professor of forestry. As an encouragement to forest extension, a law was passed April 10 entitling a landowner to an assessed valuation of \$1 per acre for land permanently reserved in forest.

The Forestry Commission of New Hampshire, in coöperation with the Forest Service, completed the study of forest conditions in the southern part of the State. The forester employed by the Society for the Protection of New Hampshire Forests engaged actively in the preparation of working and planting plans for a large tract of land near the headwaters of the Connecticut River, belonging to Dartmouth College, as well as in several smaller projects. The Forestry Commission has been reorganized with the addition of two new members who own extensive forest areas, and are greatly interested.

The report of the Commissioner of Forestry for Vermont showed good progress in the Green Mountain State.

Forest work in Massachusetts is carried on along the three general lines, education, the installation of typical plans of management, and the gathering of technical data. Forest taxation, at home and abroad, was thoroughly studied by a commission, and the results were published.

During the year, a forester was appointed to the new State office created at the last session of the Rhode Island legislature.

The chief progress during the year in Connecticut was the organization under the new law of a fire warden service of 300 members. This service was instrumental in extinguishing 64 fires at an average cost of \$7.50, and in largely reducing the loss through forest fires. The increased feeling of security resulted in more forest planting than was ever done before in a year. Under the direction of the forester, 150,000 trees were planted by the State and private owners.

Under the appropriation of \$10,000 for the purchase of forest reserve land by the State of New Jersey, nearly 1,000 acres have already been secured. Provision was made by the State legislature for a State fire warden and fire warden service.

A law creating a board of forestry, and providing for a trained forester and the establishment of a forest reserve was passed by the last Maryland legislature. On July 1 a forester was appointed, who devoted a large portion of the autumn to making a reconnaissance of the forest lands of the State. The nucleus of the forest reserve has already been secured through a donation of a tract of 4,000 acres in Garrett County.

In Ohio the Department of Forestry at the State Agricultural Experiment Station was engaged in coöperative work in planting with the farmers throughout the State—in all about 350. Plantations aggregating 500 acres were thus established.

Marked progress was made in Michigan in improvements, surveys, fire lines, and planting on the State forest reserve in Roscommon County. Two

hundred thousand conifers were planted last spring, and forty acres were seeded to western yellow pine. The present area of the reserve is about 39,000 acres, of which 3,000 acres were added during the year. Young seedlings to the number of two and a half million are now on hand in the nursery for future planting. Dead timber is being sold and removed from the reserve.

The Indiana State forest reserve of 2,000 acres is being steadily improved by planting, by improvement thinnings and by the building of roads and reservoirs.

On June 26, 1906, Congress passed a bill granting to Wisconsin 20,000 acres of vacant Government land in the northern part of the State, to be used exclusively for forest purposes. Portions of this land may be sold and the proceeds used for reforestation of the forest reserves. Mature timber on the reserves is sold under forest regulations, and in cooperation with the Office of Indian Affairs the State Forester supervises the sale and cutting of timber on the Indian reservation. The State reserve comprises nearly 300,000 acres.

Through the splendid efforts of a volunteer patrol, the excellent fire law in Minnesota proved adequate in keeping forest fires well under control. A nursery has been stocked preparatory to planting the Pillsbury tract in Cass County, and working plans for the State reserve of 20,000 acres in St. Louis County are in preparation, but the State forest organization feels sadly the need of more adequate funds.

In Kansas 500,000 young trees were distributed for planting from the State forest stations. Those furnished nursery stock reported from 65 to 90 per cent of the trees growing at the close of the year.

The Commissioner of Forestry, recently appointed in Kentucky, arranged for forest addresses at prominent State gatherings, and is now planning for cooperative work with the Forest Service under a State appropriation of \$2,000.

The State Forester of California is confronted with large problems in the control of fires, and in supplying the best advice for forest management in the markedly different conditions that exist in the State. These problems have been attacked with energy.

The appropriation of \$25,000 by the Washington State legislature was exhausted at the beginning of the forest fire season for 1906. The action of the lumbermen of the State in coming promptly to the rescue of the State fire warden, with individual subscriptions of funds ample to defray the expense of patrol until the next session of the State legislature, is one of the encouraging evidences of a practical belief in forest protection.

Only four States now contain constitutional provisions relative to forestry. The omission is felt when, as during the past year in Pennsylvania, a law so equalizing taxation as to promote permanent forest management, is declared by the courts unconstitutional. In the desire to start right, the Governor of Oklahoma asked the forester to appear in an advisory capacity before the constitutional convention. Unable to be present in person, the forester sent a representative thoroughly acquainted with Oklahoma's needs and possibilities.

Forestry in Hawaii is making excellent progress. The forest reserves are managed under the administration of a Board of Agriculture and Forestry, which regularly employs a forester in charge of a well-organized Division of Forestry. The encouraging fact of the Hawaiian situation is the recognition by private individuals of the great value of the forests as a protective cover. There are 300,000 acres in forest reserves, half of which is private land placed under public administration. Next year about 100,000 acres will be added to the reserves, and of this one-half is also to come from private holdings.

STATE FOREST ASSOCIATIONS.

Annual meetings, frequent conferences, a campaign by corres-

pondence, or coöperation with land-owners in the practice of forestry, and, in cases, all of these projects, were undertaken by forest associations in the States of New Hampshire, Vermont, Massachusetts, Connecticut, New York, Pennsylvania, Ohio, Michigan, Iowa, Minnesota, Colorado, and California. In California a number of organizations are urging that the Nation or the State acquire the Calaveras groves of big trees, to be used as a pleasure ground for the people, or that some other measures be taken to preserve this legacy of the ages.

The associations of New England are seeking by all means to guard the remaining forests of the White Mountains, and the New York associations are watching as jealously all encroachments on the Adirondacks. The Pennsylvania Forestry Association has a membership of 1,524. At its annual meeting, in December, a new tax law was prepared, to be submitted to the next meeting of the legislature. The associations of Michigan, Minnesota, and Colorado, in their animated meetings and general support of State forest work, have accomplished good results.

The Canadian Forestry Association, organized largely as a result of the American Forest Congress, has a large and growing membership. The annual meeting at Ottawa in January was the most representative gathering of its nature that has ever been held in the Dominion of Canada. A summer meeting was held in September at Vancouver.

SUCCESS OF SYSTEMATIC PROTECTION FROM FIRE.

ALTHOUGH fire still retains the same timber-consuming habit as in the old days when wood was plentiful, definite gains in controlling it have been made. Not more than a decade ago the annual fire loss of the country was placed as high as \$50,000,000; later, \$25,000,000 was thought a conservative estimate of the damage.

During 1906, fire in Michigan entailed a loss of \$460,000, and bad fires

occurred in Oregon and Washington; yet it is probable that an estimate of \$5,000,000 would cover the total loss for the year. It is true that damage from fires varies in different seasons with the distribution of rainfall and the amount of wind, as well as through accident. Yet, in arresting a multitude of incipient fires by individual and organized effort a beginning has been made, and it is hoped that improvement will follow with each year's experience. That the control of fires upon large tracts is entirely practicable has been demonstrated in the reduction of the area of burns on the National forests in 1905 to 279,000 acres—less than three-tenths of 1 per cent of their total area. The reports for 1906, though not yet tabulated, indicate a record of increased efficiency in the second year of control as it is now organized.

During the past two years the lumber interests of Maine have established six lookout stations on high mountains in the Moosehead Lake region, from which, during the danger season, the first appearance of a fire is quickly detected. It is hoped to extend the stations to strategic points throughout the State. Four large lumber and paper companies now have patrol systems. The damage during the past year is estimated at \$20,919. Considering that the woodland of Maine embraces 20,000 square miles, this is a good showing for the expenditure of the State appropriation of \$10,000 for the suppression of fires.

In Minnesota the damage from forest fires for the year is placed by the State fire warden at \$10,000—a marked contrast with 1894, when a single fire in that State cost \$25,000,000 and 500 lives.

A combined fire-protection and working plan put into operation by the owners of a large tract in northern California was so successful that it has been extended to all the holdings of the company. It aimed to prevent fires from starting by means of patrol along a carefully laid-out route. Telephone and tool stations were located,

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A combined fire-protection and working plan put into operation by the owners of a large tract in northern California was so successful that it has been extended to all the holdings of the company. It aimed to prevent fires from starting by means of patrol along a carefully laid-out route. Telephone and tool stations were located,

and broad fire lines on which the slash was burned were run through the cut-over land. The cost of all this was about 2 cents per acre per annum.

Not to attempt to review all the achievements in this line by State and private interests, these fire notes from three widely separated regions typify the action of intelligent citizens elsewhere, and establish the proposition long maintained by our Association that preparation for defense is the safest, easiest, and cheapest way to control fire. Aside from the inauguration of a definite forest policy by the National Government our greatest advance, perhaps, has been in coping successfully with the fire problem. With Federal patrol of the National forests and adequate State warden services, supported by ample funds and a State forester, although occasional fires might break out, no great conflagration could occur as in the days gone by.

PROGRESS IN FOREST EDUCATION.

AN additional instructor at the Michigan Forest School, a chair of lumbering with corresponding strengthening of the faculty at the Yale Forest School, additional lectures at the Biltmore Forest School—these are evidences that energetic for-

est students shall not fail through lack of educational facilities to place American forestry, young though it may be in years, in the front ranks of scientific attainment. The Harvard Forest School, and the departments or courses at the University of Maine, the Massachusetts Agricultural College, the Michigan State Agricultural College, the Iowa State College, the University of Nebraska, the Mississippi Agricultural College, the Minnesota State Agricultural College, Berea College, Kentucky, and the University of Texas, have better facilities and increased attendance. A chair of forestry at the University of Georgia, a department of forestry at Colorado College, Colorado Springs, and at Purdue University, and the North Dakota School of Forestry at Bottineau, have been established during the year. A chair of forestry for the Pennsylvania State College is a well-defined project.

How great has been the advance of forestry in this country and how high a value is placed on the investigations of this Government by the older forest services of Europe is shown by the recent invitation to the United States to become a member of the International Association of Experiment Stations.

LOOKING TO THE FUTURE

Address of Dr. Edward Everett Hale
at the Association's Annual Meeting

It gives me great pleasure to take advantage of the opportunity given me to say a few words here, and I wish to say to you pretty much what I said to the Agricultural Committee in the other end of the city nearly a year ago. I wish to speak simply on a single point, which, I think, is forgotten by a great many people who seem to think that individuals are in competition with the State or the State in competition with the individual in this matter of forestry. Now this isn't so. If the State chooses to go in—

to the preservation of forests, the State makes money—and let it make money—it is laying up for the future. But while some of us are 84 years old, and some 32 years old, there is not one of us who cares to look forward fifty years for his investment. That is exactly the point to be urged, it seems to me. When it comes to the question of the State's or the nation's ability to take up this or that policy in regard to forests it doesn't do to say that the State cannot afford to look forward. There is a distinct differ-

ence between this province of the State, which is immortal—and must plan for 1975 as well as 1907—and the individual, who only plans for six or eight years. The individual expects to die some time and he cannot look into the matter as far as the Nation can. The States can say that a man mustn't throw a lighted cigar into a pile of old oak leaves and can enforce that rule, but the individual cannot prevent a dozen men throwing their cigars on that pile of oak leaves.

The State can protect its investment but the individual cannot, except to make it for present use. Understand that forests are investments, investments, investments; if you could grind that into the members of Congress so that they would know it, then we should have what we want. I called the attention of the Agricultural Committee to the fact that the revenue of Prussia is twenty-five millions a year from the forest after it has paid expenses; twenty-five millions a year they take from the forest reserves. That is only a single average instance. In some cases they may take proportionately more. That is the case in Bavaria, in France, and in many other European countries. And what they have invested in forests, lasts. What about the great cedars of Lebanon; the forests which we know covered all the Holy Land. They have gone to the dogs, if you will permit me to say so. The forests of Lebanon, King Solomon built the great temple from, from which he "sent down rafts of logs from Lebanon," are now but a few hundred trees preserved as curiosities. What we call the Holy Land is surely a place abandoned, in which you cannot give the lands away because they are so worn out. And all this in the course of two or three thousand years since King Solomon. Go to Syria—it is a divested land! Asia Minor is

very much at the bottom of things, the region where Creosus lived. Creosus, the man who gave us the synonym for wealth and made it world wide! This country made no preparations for future years, had no notion of times to come. Here great cities have gone to the dogs because the forests have been neglected and because here rivers now run as mere brooks in summer when you want the water and as torrents in spring and winter, tearing away their meadow land. It is the policy of the State as a State, of the Nation as a Nation, to preserve forests enough for the future, and I do not believe that even this assembly knows in detail the way in which this demolition of forests is affecting each one of us. I had a friend the other day who sent for a couple of pieces of furniture. I think it was a cabinet to be made. The cabinetmaker asked whither he would rather have them made of white pine or mahogany. It was a mere matter of detail whether the cabinet was made of North American wood or from mahogany brought from Central America. A hundred and fifty years ago, in the great naval battles of the Revolution and of 1812, when the Constitution fought the Guerriere, when Paul Jones fought the Serapis, every spar for every ship for every one of those great navies was furnished from the New Hampshire hills. Those New Hampshire hills haven't furnished a spar big enough for a foremast of a schooner in the last five years. On the other hand, when we have got down to the point where if a man wants to make a pail and wants for that a board, he will cut down a pine tree which is 2½ inches through. You have got to take care of the Nation's forests. You have got to look ahead to the years 1980, 1990, and 2000. You have got to take care of the future of the United States.



WHAT THE FOREST SERVICE STANDS FOR

Address by Mr. Gifford Pinchot, Forester,
Practical Work of the Federal Government

THE Forest Service stands for business forestry. In addition to that statement I have only a few words to say to you about what the Forest Service stands for, because I think you know. If I may, I will say just a word about what the business situation is in the Forest Service, because I have been talking that matter over with the House Committee recently, and it is very fresh in my mind.

Just before the transfer of the forest reserves from the Department of the Interior to the Department of Agriculture was made, I was rash enough on behalf of the Forest Service to engage with the House Committee that if they would give us the right to charge for grazing, the Forest Service would never ask for an appropriation of more than a million dollars in one year, and that within five years from the transfer it would cease to ask for anything. In other words, that in five years the Forest Service would be self-sustaining.

It is now nearly two years since the transfer of the reserves to the Department of Agriculture was made, and the prospect for fulfilling that promise is good. During the year of the transfer, in which we had charge of the reserves for five months only, the income was \$75,000, there being then no grazing fee. The next year the receipts were \$767,000, or during the past calendar year something over a million, and during the present fiscal year we shall take in about a million and a quarter. The prospects are good for an increase in the income of about a half million a year for the next few years. In other words, we expect a reduction of a hundred thousand dollars in the next year's appropriation;

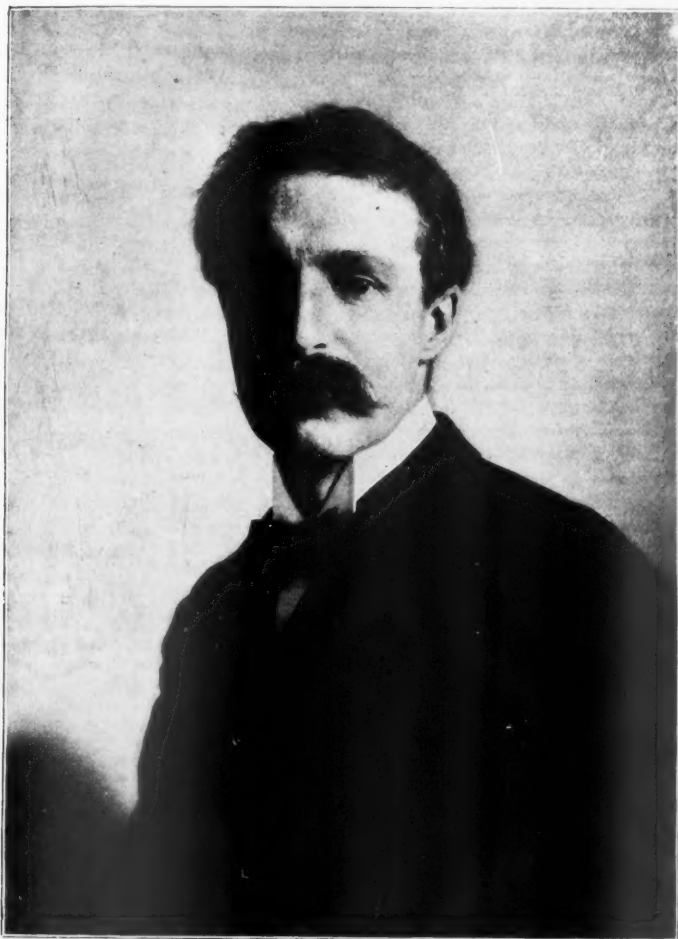
that will give us \$900,000. Year after next we expect to get only \$700,000, the next year \$400,000, and then nothing. So that the business of the Forest Service looks as if it might fairly be expected to come out all right. But that is a good deal like learning to write in the process of getting an education. If the Forest Service stands merely for business success, only a very small part of its functions can possibly be filled. We must, however, lay a foundation of business success upon which to build our superstructure of technical success in the application of practical forestry.

The first few months—indeed the first two years—since the forest reserves were brought under the care of the Forest Service have necessarily been given to completing the business organization. Now we are going to take up with more and more emphasis the details of technical matters. The business of the Forest Service is to practice forestry; it cannot practice forestry successfully unless it can make that practice pay. We know now that practical forestry can be made to pay, and the next point for us to prove is that we can practice as good forestry in the administration of the National forests as could be practiced by any other organization in our place. The point which we are going to be judged by in the end isn't the business success, but the professional success, and that is getting to be the chief object of the Forest Service; just as the boy, having learned to read, goes ahead and uses that knowledge to get his technical education and prepare himself for the real work of life. The whole prospect, I may say to you, for the Forest Service seems to be excel-

lent. I have been unable to see, and I have looked carefully, that we have any serious dangers ahead for the next two or three years except the possible failure in getting the things we need in addition to the things we have now.

some of which we may fail to reach.

I am just going out this week to discuss with the livestock men of the West the question of National control of the open ranges. There is a strong movement among them to put the con-



MR. GIFFORD PINCHOT
Forester, United States Department of Agriculture

The routine success of the management of the National forest reserves is fairly secured, but there are many objects toward which we are reaching,

trol of three or four hundred million acres of public grazing land in the Forest Service, to administer it just as we are administering the ranges in the

forest reserves. It is a movement in whose ultimate outcome I have the utmost confidence.

But just now the main issues are the proper handling of the National forests reserves and the proper spread of interest in forestry in the United States; and I think without question that assiduous, earnest, and fairly intelligent handling will assure good results.

There is another matter that I wish to speak of, suggested by what Secretary Wilson said this morning about action of the States. With the progress of sentiment in favor of forest preservation there have arisen States and National organizations to deal with these problems. And growing out of these there have been created forest commissions, State foresters, etc., men, and bodies of men, who are taking up these problems in the States. The question of the policy of the Forest Service toward State forestry is very important, and it is our decided policy to leave to every State everything in forest work that each State does not need to have us do for it. Within a couple of days I wrote to the State Land Board of California, asking that whatever appropriation it proposed to get for the expenses of Forest Service work in California be given, not to us, but to the State Forester; and in similar cases it is the policy of the Forest Service to help State organizations just so far as lies in our power and just so far as they want our help, but never to penetrate their field except by their invitation—never to stay in it any longer than is necessary; but that work which ought to be done by the States should be left by the National Government to them. Of course, this does not mean that the National forests should be managed by the States.

Another matter in which the Forest Service is interested is the support of education in forestry. It is striving to give help just so far as it can to the institutions scattered throughout the country—and they are very numerous now—which are taking up instruction

in forestry, from either of two points of view. I wish to make this distinction here: there are preparatory schools, so to speak, in forestry, which do not prepare students in professional work, and there are professional schools whose business it is to turn out men ready to go to work in the first field. The great danger which threatens forest education now is that institutions which are well equipped to give the preliminary education should attempt to turn men out as professional foresters, when they are not really able to do so. The Forest Service is exceedingly anxious for a supply of men, and it is still more anxious that the men who come in should be thoroughly trained. Accordingly it is very solicitous that the schools which profess to give complete and professional training, should really be equipped for that purpose. And I must tell you in closing of the tremendous need that we have for men.

We have now, as you know, 127,000,000 acres in forest reserves. All of this is but a drop in the bucket compared with the total forest area of the United States, and but a small part of the forest which must be preserved if the results of forest preservation are to be achieved. We are doing pretty well with the Western mountains, but those Western mountains will not supply the National need. That must be done by the States and by private individuals, who will hold and manage their forests on scientific principles. Even in this comparatively small forest area, which the National Government holds, our forces are ridiculously inadequate. We have now, in the middle of winter, about 600 forest rangers and about 90 forest supervisors; that is to say, a force of about 700 men for an area which, if it were managed as it would be managed in Prussia—taking Prussia as an illustration—and we were to have as many men on our forest reserves as they would have in Prussia, we would have something over 15,000 forest supervisors and something over 117,000 forest guards. We have about 200 trained

foresters to do the work which would be done in Prussia by 15,000. If we were to add a hundred men a year to our present force, and each man appointed lived and worked to the end, it would take about a hundred and fifty years to get our reserves manned in the Prussian way. One of the very first demands of the present situation is for men. We realize that unless the forest schools can begin to turn out the trained foresters we need, we shall be unable to meet the rapidly increasing demands for men in the forest reserves to handle them properly. The only reason we can do it now is because the demand for products of the reserves is comparatively small. As the population increases, as people understand how to use the National

forests more freely, and as roads and trails are built, the forests will be used ten, twenty, or a hundred times more than they are now; and when that time comes, unless we can have enough trained men ready for professional work on the reserves, we shall have an exceedingly hard job. Just one ray of light, in addition to the very hopeful fact that many forest schools have been established, shines from the prospect that Congress will give \$2,000,000 to be spent on permanent improvements, roads, trails, telephones, and fire lines, and with that sum of money will at least double the efficiency of our present force. When that comes about it will be altogether the most hopeful thing that has happened to us.

WHY THE BILL HANGS FIRE

An Explanation and a Plea

BY

EDWIN A. START

Secretary of the Massachusetts Forestry Association

PERHAPS no question has been more frequently asked in the last few months by friends of the eastern forest reserves project than this: "Why is it so difficult to secure the passage of this bill? It has been earnestly advocated by the ablest newspapers and periodicals in the country; it has been supported by influential and public-spirited organizations upon whose support there is no possible taint of self-interest; it has met with no opposition from the Senate of the United States; it has received the unanimous endorsement of a large and able committee of the House of Representatives, after that committee had held searching and exhaustive hearings. It has been repeatedly urged by the President in messages to Congress. There is a belief that if it comes up for

consideration in the House it will pass that body, and it is known that it would receive the President's approval. Petitions and arguments in favor of it have been made by representatives of great commercial and industrial interests, by public health experts and by those who are entitled to speak for the plain people of the country. Why, then, can we not secure its consideration?"

It may seem to be somewhat academic to take up this question at the present time, when the passage of the bill is hanging on the effectiveness of the arguments which may be presented to the one man who holds the key to this, as well as to all other matters of National legislation; but perhaps there may be in a consideration of the answer to it some suggestions that will

be helpful in the immediate present and in the future.

To the average mind the proposition is as plain as a pike-staff when it is once carefully considered. It is easy to show that the loss of these great forests in the southeast and northeast will affect society injuriously in a dozen different ways. The wealth and industries, the health and the recreation of the people will suffer an irreparable loss from their destruction, and the present progress of cutting in both these regions is so rapid and the methods are so wasteful that this evil will fall, not upon distant and unknown generations, but upon that immediately following our own. The life of thousands of people in the Southern States and in the New England States, twenty-five years from now, will be different, and most unfortunately different, from our own, if the destruction of these forests for present private gain is permitted.

Why, then, is it permitted? Certainly not because the country is too poor to take care of its property. We spend millions for battleships to prevent a problematic war; we spend millions on the channels of our rivers and harbors, while the silt from our denuded water-sheds is annually swept down to undo the work which has been done at so large expense. We spend more millions for post-offices and other public buildings throughout the country, in order that the pride and dignity of the Nation may be maintained, utterly regardless of the fact that history has already proved by numerous examples that a deforested country can not long have any pride and dignity to maintain. We look with distrust and some contempt upon the shiftless property owner who allows his buildings to fall into disrepair, who lets his land run to waste and his orchards and his crops suffer from neglect. We say that that man will never succeed, that he does not take care of what he possesses, that he lacks ordinary prudence, and yet this is exactly what this, the government of our wealthy and progressive country, is doing with the most

valuable and necessary of its possessions—a possession upon which depends more of its material prosperity, and hence of its social welfare, than upon anything else of a material nature that can belong to a nation.

How simple this problem is! No one has ever questioned it who has given it serious and thoughtful consideration, and yet this comparatively small appropriation hangs fire when there is an absolutely unanswerable and unquestionable argument to show its immediate and pressing necessity. Of course it is a very simple thing to charge this condition of affairs upon the rules of the House of Representatives and especially upon the administrator of those rules, the Speaker of the House. In a certain sense, the responsibility lies there, but the real cause of the difficulty lies very much deeper than that. It is to be found in the inertia of a great people.

The people in a democracy get from their representatives just what they **insist upon having**. Theorists often seem to think that only the supposedly best element should be represented, but that never was and never will be. The legislative stream will not rise higher than its source. And this body is not impervious to the demands of the people who created it. Two classes of legislation always stand a good chance of at least a hearing before it—those measures that so directly affect certain classes that those classes will demand and fight for their enactment, and those which touch a popular chord so strongly that there is a great uprising which legislators do not dare to resist. Measures in the interest of the whole people, but that do not touch directly their hearts or their pockets, so that their active promotion is left to the public-spirited few, are those that are likely to be set aside in the great sifting that goes on at the Capitol.

Now the inertia of the people under ordinary circumstances is much harder to move than are the forests on our hills. It does not respond readily to purely intellectual argument. The solid and effective support of New England

for the forest reserves bill, while its argument is found in economic and business considerations, was so thoroughly consolidated because the heart of New England responds so quickly to a plea for the White Hills, beloved of its people for three or four generations. Thus touched at heart, the people take a keener interest in the solid argument on which the measure rests.

It is but rarely that the people's representatives will go ahead of the people and blaze the trail in legislation. Their ears are very close to the ground, for obvious reasons, and there must be a mighty rumbling to move them. The American people are just now living very much in the present. The careless, Bourbon epigram, "After us the deluge," might almost be our motto to-day. Once in a while the people are touched by a moral issue and bestir themselves mightily. Then they get results. The forest reserves bill is in the stage of intellectual expression, and it is only the most thoughtful people who see and understand its need. The

awakening of the masses will come when it is too late, when wasted hill-sides, ruined industries, and a cheerless country have driven home the lesson.

The basic difficulty, then, is with the inertia of a people who are wilfully blind to what does not touch them personally and immediately; who see their prophets in the market place but are too busy with the bargains of the moment to give them heed; who will not look forward into the future and have lost the old-fashioned care for coming generations. It lies with politicians who are opportunists and not statesmen of vision and leading, and with the people who cast a nation's fortune on the table with a gambler's spirit and "match with Destiny for beers."

If the Fifty-ninth Congress, in its closing days, will join the saving remnant who are looking ahead, and pass this bill, it will show its clearer vision and broader statesmanship and it will deserve and receive the recognition of history.



The Month in Government Forest Work

Western Meetings

Mr. Gifford Pinchot, Forester, left Washington for New York, January 10. From New York he went to Chicago and thence to Rock Springs, Wyo., to attend the third annual convention of the Wyoming Wool Growers' Association on January 15 and 16. His address at that meeting was "The Forest Reserves." Mr. Potter, chief of the office of Grazing in the Forest Service, also attended the Rock Springs meeting. The following forest super-

visors were there: Zeph Jones, Pine-dale, Wyo.; R. E. Miller, Jackson, Wyo.

From Rock Springs Mr. Pinchot and Mr. Potter went to Salt Lake City to attend the forty-third annual convention of the National Wool Growers' Association on January 17, 18, and 19. Mr. Pinchot spoke to this convention on "Forest Reserves and the Grazing Industry." The following supervisors attended the Salt Lake City convention: J. B. Lafferty, Weiser,

Idaho; W. I. Pack, Provo, Utah; E. H. Clark, Murray, Utah; B. F. McConnell, Priest River, Idaho; Dan S. Pack, Payson, Utah; A. W. Jensen, Ephraim, Utah; Homer E. Fenn, St. Anthony, Idaho; Charles F. Cooley, Grantsville, Utah; N. E. Snell, Salina, Utah; C. G. Y. Higgins, St. George, Utah; F. A. Fenn, Wallace, Idaho; David Barnett, Los Vegas, Nevada; Wm. Hurst, Beaver, Utah; J. F. Squires, Logan, Utah; George H. Barney, Escalante, Utah; T. C. Hoyt, Parowan, Utah; Orrin C. Snow, Moab, Utah.

Mr. Pinchot and Mr. Potter went from Salt Lake City to Denver to be present at the annual meeting of the American National Live Stock Association on January 22 and 23, and attended at the same time the annual meeting of the Colorado State Forestry Association. At the stockmen's convention Mr. Pinchot gave a brief review of the administration of the forest reserves during the past year and a discussion of the question of Government control of the open range, either by lease or otherwise. Supervisors in attendance at the Denver meeting were the following: E. F. Morrissey, Cache, Okla.; James A. Blair, Meeker, Colo.; F. C. Spencer, Monte Vista, Colo.; Eugene Williams, Westcliffe, Colo.; Ross McMillan, Portales, N. M.; L. F. Kneipp, Santa Fe, N. M.; Thos. Hogan, Kremmling, Colo.; H. N. Wheeler, Durango, Colo.; Shep N. Husted, Ft. Collins, Colo.; John Kerr, Captain, N. M.; A. L. Stroup, Leadville, Colo.; Harry H. French, Glenwood Springs, Colo.; W. R. Kreutzer, Gunnison, Colo.; C. A. Scott, Halsey, Neb.; R. W. Shellabarger, Moffat, Colo.; J. F. Smith, Deadwood, S. D.; David Anderson, Colbran, Colo.; H. K. Porter, Delta, Colo.

After the Denver meeting Mr. Pinchot returned East, stopping at Cincinnati to speak at the Lumbermen's Club, on the evening of January 26. Mr. Potter went from Denver to attend stockmen's meetings at Rawlings,

Wyo., on January 26 and 27, and at Walla Walla, Wash., January 30 and 31.

There has been some advocacy of Federal administration of the public grazing lands under the Forest Service, and subject to the same regulations that are now in force on the forest reserves. It is significant that the initial suggestion toward such administration came from the stockmen themselves.

After long use of the general term "red fir" to denote the popular name of *Pseudotsuga taxifolia*, the Forest Service has officially adopted the term "Douglas fir." There has been a considerable variation in the common names of this species, both in speaking of the tree and of the lumber which it furnishes. It has been variously known as yellow fir, red fir, Douglas spruce, Douglas fir, and Oregon pine. Recently lumber dealers have not liked the term "red fir," because there was a prejudice against fir lumber, so various other names have been substituted from time to time and have had some vogue. No one, however, seemed to be overwhelmingly in the lead until the Forest Service sent out an inquiry for statistical information on lumber cut. Because of the variation in common name the Forest Service gave three names under which the figures could be listed; these were, Douglas fir, yellow fir, and Oregon pine. In the returns some dealers wrote "red fir" to indicate this lumber, which is neither fir, spruce, or pine; but returns as red fir were only about 7 per cent of all, while more than 70 per cent reported their product as Douglas fir. For a long time there had been dissatisfaction in the Service over "red fir," and while the returns from the lumber manufacturers may not have been the first cause in bringing about a change, they were a contributing cause of no small weight, and gave the strongest impetus toward the term now adopted, to conform with popular use, viz., "Douglas fir."



Government Irrigation Work During the Month

The Shoshone and Pathfinder Dam Bids were recently opened by the Reclamation Service engineers for furnishing and installing high pressure gates for the Shoshone and Pathfinder dams, Wyoming.

The New Jersey Foundry and Machine Company was the only firm that submitted bids. The price named for the Shoshone gates was \$59,166, and that for the Pathfinder dam, North Platte irrigation project, \$78,567, the time required for completing the installation being 515 days after the signing of the contract by the Secretary of the Interior.

The Secretary of the Interior rejected the bids as too high, and authorized the engineers to receive informal proposals for the manufacture and installation of the gates.

Masonry work on the Pathfinder dam was suspended in the middle of December on account of cold weather. The total amount of masonry laid to date is 5,519 cubic yards. A channel has been left at the southerly end of the masonry to take care of water which seeps through the temporary dam, and it is expected that by the time high water appears in the spring the dam will be at sufficient height to force the water through the tunnel, the 36-inch pipes and the channel at the southerly end.

The men who were taken from the masonry work were immediately engaged removing loose rock from the walls of the canyon, and cutting recesses to take the thrust of the dam where the walls do not give suitable bearing. Work on the quarry will be pushed during the winter preparing material for the masonry work.

Operations were greatly hindered during the month both on the dam and on the canal by inclement weather and the scarcity of labor. The winter work will consist mainly of completing such structures and excavating as the weather will permit, and in preparing to push work rapidly in the spring.

The Lower Yellowstone

A board of consulting engineers of the Reclamation Service which recently convened at Glendive, Montana, to open proposals for laterals and waste ditches, Lower Yellowstone irrigation project, Montana and North Dakota, received but one proposal, and that for a part of the work only.

The work involves the construction of about 74 miles of laterals, and 34 miles of waste ditches near Glendive, and calls for the excavation of about 500,000 cubic yards of earth, and the furnishing of such material and doing such other work as may be necessary for the completion of the work.

The bid received was that of C. J. Murphy, Glendive, Montana, for about 48 miles of laterals and 15 miles of waste ditches. The price named was \$91,454. The bid was rejected, and the engineers of the Reclamation Service were authorized to secure informal proposals for the work.

The Corbett Tunnel

Work on the Corbett Tunnel, which is an important unit of the Shoshone project in Wyoming, progressed satisfactorily during the month of December, being only slightly delayed by reason of cold weather which interfered with the laying of concrete.

The Government is doing this work by force account, and in December

excavated 791 linear feet of tunnel, drove 801 linear feet of heading and concrete-lined 305 feet of arch and side walls.

On January 1 the Corbett Tunnel had been driven 9,323 feet, of which 3,502 feet are lined.

On the great Shoshone dam, which is to be the highest in the world, the contractor has not made satisfactory headway. His work during the past month consisted of driving a road tunnel and excavating for temporary flume and spillway.

The engineers report a great improvement in labor conditions.

Water in the Gunnison Tunnel

On December 20th water was struck in the west end of the Gunnison Tunnel, Montrose, Colo., and poured in at the rate of about 4,000,000 gallons per day. This water was so heavily impregnated with carbonic acid gas as to render it impossible for the men to enter the tunnel. It is believed that the water comes from a large, underground reservoir which will drain out in time. It may, however, be necessary to blow the gas out by means of pipes.

Most satisfactory progress has been made on this tunnel since the work was taken over by the Government, and it is now considerably more than half way through the mountain. It is not probable that this interruption will be serious. The engineers now expect to have the tunnel completed and water flowing through it for irrigation purposes by June of 1908.

Purchases Authorized

The Secretary of the Interior has authorized the Reclamation Service to purchase power equipment to be utilized in the building of the Cold Springs dam, Umatilla irrigation project, Oregon, now being constructed by force account under the supervision of the Government engineers. The estimated cost of the machinery is \$5,000.

The Secretary has also authorized the Service to purchase, by informal contract under competitive proposals,

the necessary equipment, consisting of machinery, for the generating of electricity and its utilization at the tunnel headings and other points on the Tieton project, Washington. The cost of the machinery is not to exceed \$75,000.

Contracts

The Secretary of the Interior has executed a contract with the Midland Bridge Company, of Kansas City, Missouri, for furnishing steel and cast iron for the Rio Grande irrigation project, New Mexico.

The contract calls for about 55,000 pounds of steel bars for reinforcement of concrete, about 12,800 pounds of structural steel, and about 9,000 pounds of cast iron gates, guides, stands, etc., and will amount to about \$2,885.

The Secretary of the Interior has executed a contract with Jesse W. Crosby, Jr., of Cowley, Wyoming, for the construction and completion of the Corbett tunnel settling basin, dam and spillway, Shoshone irrigation project, Wyoming.

The work is located about ten miles east of Cody, and includes more than 28,000 cubic yards of excavation. Mr. Crosby's bid was \$23,740.50.

The Secretary of the Interior on January 12th awarded a contract to the Expanded Metal and Corrugated Bar Company, of St. Louis, Mo., for furnishing 1,800,000 pounds of steel bars for reinforcing concrete in connection with the Tieton project in Washington. The bid of the above firm was \$38,315.99.

The Secretary of the Interior has ordered the suspension of the contract with Piper Bros. Co., of Pueblo, Colo., for five schedules of the distributing system, Huntley irrigation project, Montana, and authorized the continuance of the work by the Reclamation Service.

The company abandoned their contract on November 16th and turned it over to the United States. As the continuance of the work was urgent, the Government engineers promptly took possession of the equipment, and the

work was continued without the loss of an hour's time.

**Time
Extensions**

Owing to the inability of the contractors to secure laborers, the Secretary of the Interior has granted an extension of time to January 1st, to the Canton Bridge Company, of Omaha, Nebraska, for the completion of five highway bridges over the main supply canal, Belle Fourche irrigation project, South Dakota.

The Secretary of the Interior has granted an extension of time to March 31st to James O'Connor, of Morgantown, Indiana, for the completion of the work under his contract for the construction of Section 6, Interstate Canal, North Platte irrigation project, Nebraska-Wyoming.

The delay in the completion of the work was occasioned by the inability of the contractors to obtain laborers, and also by the fact that the estimates as to the amount of classified material involved were too low.

On January 15th the Secretary of the Interior granted an extension of time until September 1, 1907, to the contractor for the construction of divisions 1, 2 and 3, Main Canal, Lower Yellowstone project, Montana.

On January 19th the Secretary of the Interior granted an extension of time to July 1, 1907, to Nohle and Mann, of Buford, North Dakota, for the completion of the work of constructing a unit of the Lower Yellowstone project.

The Secretary of the Interior has granted an extension of time to S. R. H. Robinson to June 1, 1907, for the completion of his contract for the work of Schedule 1, main supply canal, Belle Fourche project, South Dakota.

The Secretary of the Interior has granted an extension of 60 days' time to Orman & Crook, of Pueblo, Colorado, for the completion of their work on the South Canal, Belle Fourche irrigation project, South Dakota.

This extension became necessary by reason of the fact that hard freezing weather set in, making it a physical impossibility for them to complete their contract on time.

**Mr. Perkins on
the Western
Situation**

In the middle of December Mr. E. T. Perkins, engineer and traveling auditor for the Reclamation Service, was in Washington for a few days on official business. He has inspected all of the irrigation projects now under construction by the Government during the past season, and reports that, considering the scarcity of labor and the blockade on transportation lines, the work is progressing splendidly in all parts of the West. "In fact," said Mr. Perkins, "the work of the Reclamation Service is progressing more rapidly than that under way by railroads or private corporations."

Continuing, Mr. Perkins said:

"I have just come from Oklahoma City, where I attended the first annual meeting of the National Drainage Association. The work of this association looking toward the drainage of swamp lands owned by the United States promises in the near future to be as important as the irrigation of the arid lands of the West.

"The first session was remarkably successful. Seventeen States and Territories were represented by a high class of delegates who organized the National Drainage Association and gave a decided impetus to the question of National drainage, endorsing the bill recently presented by Senator Flint, of California, entitled 'A Bill for the Establishment of a Drainage Fund and the Construction of Works for the Reclamation of Swamp and Overflowed Lands.'

"The next session of the Association will be held in St. Paul, Minn., some time during October, 1907."

Chief Engineer F. H. Newell, of the U. S. Reclamation Service, delivered an illustrated lecture at Philadelphia on January 16 at the Annual Meeting of the Franklin Institute. The lecture was illustrated with lantern slides showing the progress of the Government work of reclaiming the arid land of the West.

NEWS AND NOTES

(Continued)

Scrub Pine in Kentucky

The scrub pine (*Pinus virginiana*), which on the gravelly ridges of Maryland is a much smaller tree, here attains a height of 75 feet and diameter of 2 feet. It is used largely for construction material, especially for barns, of which the framework is built entirely of scrub pine, excepting posts, for which oak is used. Measurements of an old-field stand of scrub pine, seeded 45 years ago from an adjoining woodland, showed annual increment that compares favorably with Scotch pine in Prussian forests, as recorded by Doctor Fernow.

As a source of supply for scantling, rafters, and cheaper construction material, scrub pine, in rotations of from 40 to 60 years, offers possibilities in central Kentucky that should not be overlooked.

Recommendation for Minnesota

General C. C. Andrews, Forestry Commissioner of Minnesota, calls to the attention of FORESTRY AND IRRIGATION an important extract from the message of Governor John A. Johnson, which was read before the Senate and House of Representatives of Minnesota in joint session, January 9, 1907. The extract follows:

"The proper treatment of our forest resources is a matter of serious importance and merits your best thought.

"Much of the land which has produced pine timber is available for agriculture, but some of it from being rocky, hilly, or very sandy is only fit for growing timber. Nature alone will restore a portion of this latter with pine if fires are kept out, but the greater part of it will need to be planted. On such land it requires on an average about 80 years for pine to grow to merchantable size and a businesslike beginning of reforestation should be made without further delay.

"The State itself owns only 21,000 acres of forest reserves, all being under charge of the forestry board. Of this,

20,000 acres, being the so-called Burnt-side forest in St. Louis county, were granted by Congress in 1904. A working plan has been prepared for the same and a nursery should be started preparatory to planting the greater part of the land with pine and spruce. The other 1,000 acres comprise the Pillsbury donation in Cass county on which is a nursery of pine and spruce seedlings which if possible should be planted the coming spring.

"In addition to these reserves is the Itasca Park of about 14,000 acres owned by the State, which I recommend be placed in charge of the forestry board with condition that no green and growing timber shall ever be cut.

"An act passed four years ago authorized the forestry board to purchase land for forestry purposes at a sum not exceeding \$2.50 an acre, but no money has been appropriated to carry it into effect. I recommend a moderate appropriation to start work under that act."

Lumbermen for Eastern Reserves

Under the caption "Congress Might Well Pass the Eastern Forest Reserves Bill," the *American Lumberman*, probably the foremost journal in this country devoted to the lumber industry, prints the following:

"One of the most incomprehensible things regarding current National legislation is the prospect that the eastern forest reservations bill is likely to fail in the House simply for lack of being brought to a vote. The approval which the bill has met, its triumphant progress so far, and the now inexplicable chance of its final failure are thus set forth in an appeal issued by the American Forestry Association: 'This measure is urged by all friends of the forests; it has passed the United States Senate unanimously; it has been recommended unanimously for passage by the House Committee on Agriculture;

the President is strongly for it; the majority of the members of the House are believed to favor it—yet grave doubts exist as to whether it will come to a vote.

"What sinister influences are at work in connection with this bill? The excuse given in the House is that there is not time at this short session to consider it. Yet it is difficult to conceive how, in view of the action of the Senate and of the House Committee, of the publicity that has been given to the subject, of the wide general knowledge about it throughout the country, and, we must presume, in the House of Representative, such an excuse is valid. It should not take one hour of the time of the House to pass this bill, which is one of the most important now pending. It means the material salvation of important sections of the country, for it means preserving the forest cover of sections that are adapted to no other form of plant growth; it means the preservation of great regions that are now the delight of the tourist and summer resorter but which, by much further denudation, will be shunned rather than sought; it means the preservation of water power; it means the salvation of the lowlands and the rich bottom farms; it means almost everything that tends to the prosperity of a mountain section.

"It might be presumed that the lumbermen are exercising some sinister influence against the bill, for that industry is the only one which will find its activities limited by the erection of these two reserves in the White Mountains and the Southern Appalachians; but such a presumption would be wrong. Every lumber association whose attention has been called to the bill or to these forest reserve projects has emphatically indorsed it. Even the lumbermen directly concerned by reason of their operations in the forests, which will be included in McKinley Park in the Appalachians, have pronounced in favor of the measure. They have been willing that something should be sacrificed of their opportunities for the future, for the sake of the

general good. If the bill be passed, instead of a free access on an ordinary business basis to these forests they will be obliged to content themselves with what timber the Government Forest Service shall determine can be spared from the forest cover. Yet they are preparing themselves to be content with such a limitation of their business and opportunities of profit.

"Where, then, is the difficulty and what is halting the bill? Can it be that the members of the House, and especially those in control of legislation, are so indifferent to the public welfare, so careless of the future, so heedless of the financial consequences, that they are merely neglecting this duty? Every month of delay in the setting aside of these areas means less productiveness of the sections in and adjacent to them, and also means a greater expense for acquisition, maintenance and rehabilitation in the future. For the time will soon come, as events are moving now, when the Nation will be obliged to act along the same lines as now proposed, and the longer that action is delayed the more it will cost. We can join in the appeal of the American Forestry Association, of which Secretary Wilson is president, to the people, and particularly to those interested in the lumber trade, to urge its support and passage at this session of Congress."

**Report of the
Forester**

The report of the Forester for 1906 has recently come from the press of the Government Printing Office. It is noteworthy for its exposition of remarkable advance in forestry by the Federal Government. It takes up the various offices that make up the organization of the Forest Service, and in the showing that these make there is the indication of a growth in organization and efficiency which has scarcely been equalled in any other branch of the Government at any time. Two years ago the Service was a small bureau; now it is one of the most active and important factors in the care and development of the internal wealth of

the country, matched in value and in ability to grasp great opportunity by that other agency with which it goes hand-in-hand for the upbuilding of our great Western domain—the Reclamation Service.

The principal achievements during the past year have been the perfecting of a smoothly working organization, capable of meeting the demands made upon it. This has been brought about through a marked improvement in the efficiency of the force on the forest reserves, due to the progressive education of the men in their duties, and to the elimination of men below the high standard of competency which was set. Also there has been an increase in understanding and co-operation between the office and the field forces, and this has been largely due to the effort to have the field and office meet and become personally acquainted. Fees from grazing have added to the working capital; free use of privileges by settlers has brought about good will and support for the reserves where there had once been ill-will and opposition.

In addition to the advancement within the Service itself, there were onerous duties and grave responsibilities that had to be shouldered when the forest reserves were transferred from the Land Office to the Forest Service. Yet individual members, as pointed out by the Forester, contributed notably to the work of the various committees under the Committee on Department Methods, popularly known as the "Keep Commission."

Southern Meetings

Mr. H. M. Hale, of the Forest Service, gave an address before the annual meeting of the Tight Barrel Stave Manufacturers' Association at Memphis, Tenn., on Jan. 15. The meeting was also attended by Mr. Carl J. Crawford, of the Forest Service, who spoke on the "Progress of Wood Preservation in 1906." Mr. Crawford then went to New Orleans to attend the annual meeting of the Yellow Pine

Manufacturers' Association, held January 22 and 23.

They Are Yours If You Want Them

As this issue of FORESTRY AND IRRIGATION goes to press, one forest question, more than any other, holds the foreground insistently: Will the House of Representatives pass the bill establishing the long-desired and imperatively-needed National forests in the East?

Unwillingly, at the recent annual meeting of the American Forestry Association, several of the men who have urged and pressed this measure confessed that its success lay beyond their control and with the people of the interested States and the representatives of those States in the Lower House of Congress. What men could do by research, explanation, proof, and persuasion these advocates of the measure, North and South, have done with their whole minds and hearts. Tirelessly, they have given their thought and energy to bring before the people of the White Mountains and the Southern Appalachians the decisive import of the so-called amalgamated bill. In the States whose future prosperity is concerned in the issue, scores of men who are trusted as intelligent leaders have made clear as day the need of safeguarding the forests of New England and of the Eastern States, not only for posterity but for the younger generation now living, which must largely rely for industrial success upon the conservation of the timber and water powers within the threatened regions.

The Senate, last year in passing the bill, acknowledged the wisdom of the demand for the Eastern reserves. The President eagerly desires its enactment into law. And yet—there has come a halt. At this critical moment failure to act on the part of the House would render fruitless the Senate's action, dash every hope for some time to come, and fling again to the bottom of the hill the stone which past effort and enthusiasm have doggedly rolled almost to the crest.

Those who are most concerned, those who are to be benefited—the citizens of the States involved—can still save the day. But for this they must promptly bestir themselves. All of you who want the White Mountain and Appalachian forests secured in perpetuity for your use, health, or enjoyment, may yet have your will—in one way. Let your representatives in Congress know, know now, know unmistakably and unanswerably, that your will is to have these reserves, and to have them this session.

Is the success of five years' hard work worth the price of a telegram? "Pass that White Mountain-Southern Appalachian Bill." That is precisely what it would cost each one—not a cent more.

A National Question

The suggestion, sometimes heard in the vicinity of the Capitol, that the States concerned should, in a body, buy the necessary lands, establish the reserves, and save Congress the trouble of passing the White Mountain-Appalachian bill, received particular attention from Gov. Glenn in his plea before Speaker Cannon. The Governor referred pathetically to an attempt made by a certain group of States a generation ago to do business on their own account, and declared that, though then as now, perfectly honest, and acting in accordance with their light, they no longer are interested in this mode of procedure. They prefer, instead, that all interstate matters should be handled by the one interstate authority, the General Government.

Dr. Edward Everett Hale, in a talk to the delegation of governors at the luncheon preceding the visit to the Speaker, referred to Northern experience along this same line. The classic example, the Hartford Convention, has, he declared, been, ever since its ill-starred session, the most unpopular gathering ever convened in the North.

Attention has also been called to the utter lack, by any possible group of States, of machinery for administering a common interest and of power

for providing such machinery; while, if an attempt by such a group to undertake such an enterprise were seriously considered, Article I, Section 10, Clause 1 of the National Constitution still stands as a lion in the path. It reads: "No State shall enter into any treaty, alliance or confederation." How many a promising venture has gone down before a constitutional obstacle less specific than this, the history of litigation in America eloquently portrays.

Relation of Forests to Extension of Trade—The following resolutions were adopted without dissent by the National Convention for the Extension of the Foreign Commerce of the United States, in session at Washington, D. C.:

WHEREAS, this convention seeks to extend foreign trade; and

WHEREAS, to effect this end, American goods must be produced not only well but cheaply; and

WHEREAS, cheap production depends upon the preservation and perpetuation of the water powers of the Southern Appalachian and White Mountains, in which regions several hundred million dollars are now invested in manufacturing enterprises; therefore, be it

Resolved, That this preservation and perpetuation can best be effected by the passage of the Southern Appalachian-White Mountain Forest Reserves Bill nowhere before Congress; and

WHEREAS, this bill has unanimously passed the Senate and has been unanimously recommended for passage by the House Committee on Agriculture; and

WHEREAS, the President of the United States earnestly advises its enactment; seven State legislatures have recommended its passage; the National Board of Trade, representing over seventy boards of trade and chambers of commerce, strongly favors it, as do, also, the entire cotton mill interests of the country, The National Wholesale Lumber Dealers' Association, the Association for the Advancement of

Science, the Civil and Electrical Engineers' Association, and many other influential bodies, while the press of the country is a unit in its favor; and

WHEREAS, delay in the passage of this bill permits denudation to go rapidly forward, causing irreparable damage to the waterways and powers, while advancing prices of land and timber seriously jeopardize the possibility of effective action in future; therefore,

Resolved, That the Convention for the Extension of the Foreign Commerce of the United States urges the passage of this bill at the present session of Congress.

Uinta Reserve Sales and Timber Sales

Sales of timber aggregating ten and three-quarter million feet have secured to the Uinta Indians nearly \$28,000 under the Act of March 3, 1905. This law provided that any land in the Uinta Indian Reservation necessary for forest reserve purposes might be proclaimed by the President as part of the Uinta Forest Reserve. Ordinarily ten per cent of the gross receipts from reserve business goes to counties within the reserve, but this special law gives to the Indians the entire timber sale receipts from these lands for the fifteen years ending June 30, 1920. The area of this Indian land made a forest reserve, under the act, was 1,010,000 acres.

The average price received per thousand feet in sales hitherto is \$2.50, though 2,227,000 feet was dead timber. Prices are rising, however. The last sale of green timber was made at \$5.53 per thousand, nearly the highest figure ever paid for timber in the history of Government timber sales.

It is confidently expected that through this administration of the former Uinta lands the Indians will receive from timber sales alone at least as much as they would have received for this land if it had not been included in the reserve but disposed of at \$1.25 per acre, as would have happened otherwise. Moreover, this ar-

range returns their profit in the form of a steady income.

Finally, when the period of trusteeship ends in 1920, and the Indians have received full payment, the public will still possess in the land a productive forest, improved by correct management and producing timber of which the value will assuredly have been increased by the lapse of time and the growth of demand. The Indians themselves are allotted on lands dependent on irrigation, which would be greatly harmed if this reserve area were not maintained under forest.

Helping Forest Legislation

Interest in forest legislation is markedly increasing. Recently the Forest Service has been consulted in the interest of a number of States in which the want of laws or defects in existing laws are felt.

The bar association of West Virginia has been in communication with the Forester in quest of aid for a general forest law for the State, and has received suggestions based on the experience of the Government and of other States. One of the requirements which the Forester feels to be essential involves the certification of the qualifications of State foresters by the Secretary of Agriculture, as a means to securing competent technical men.

From New Hampshire has come a request for guidance in framing a general law for the organization of a forest office. The Governor of Tennessee has asked for information upon State forest legislation in general; a Senator from Oregon has complained of the deficiency of the State forest fire laws, and has been furnished with a copy of the California fire laws which were drawn under the supervision of the Service; Alabama is desirous of providing by law for efficient State supervision of her forests. The creation of the office of State forester is being seriously considered in Illinois.

New Jersey and Pennsylvania, especially, are struggling with the difficulties of so taxing forest land as to en-

courage the permanent holding of forests for repeated crops as against the practice, too often induced by present taxation, of stripping and abandoning forest land to escape over-burdensome taxes. In the case of Pennsylvania the existing tax exemption law, designed to equalize taxes for owners of timberland, has been declared unconstitutional, and the advice of the Service is desired in framing a law which shall not clash with constitutional provisions.

**Co-operative
Management
in Arkansas**

A lumber company of Thornton, Arkansas, has called upon the Forest Service for an examination of its timberlands looking toward a plan of management on right forest principles, and a representative of the Service has been detailed to the work.

The timber tract comprises about 70,000 acres of shortleaf and loblolly pines, with some hardwoods.

Protection from fire is the first object by the company. It is felt that the danger of serious losses from fire more than warrant the expense which may be necessary to guard the tract, and the marked economy and success of

protection plans prepared by the Government foresters for timberlands in many parts of the country, notably in California but also in the South, the East, and the North, are felt to promise good results for this tract.

The company is also desirous of securing more satisfactory rules for cutting and logging—rules which will enable them to get out the timber with less damage to young growth and a better guarantee of later crops than would be possible from the usual lumbering practice.

Incidentally, though most of the timber on this tract is coniferous, there is enough hardwood to make desirable some special study of hardwood utilization. It is interesting to note that it was to the timber situation in this State that the Secretary of Agriculture particularly referred in his recent speech before the annual meeting of the American Forestry Association, when he called attention to the rising demand for wood for barrel staves and declared that when the choice woods of Arkansas shall be exhausted, he could not tell where we should hope to find supplies.

THE MERRIMACK VALLEY

BY

GEO. WARD COOK

At Annual Meeting.

IN speaking on this Forest Reservation matter, I wish to say it has had a warm place in my heart for years.

The "Rhine of America" (the Merrimack) has interested me in many ways. One of its most prosperous boards of trade at the city of Haverhill was my conception, and my interest extends to the twelve cities along its banks. I conceived the idea of having a brief petition favoring the bill now in Congress endorsed by leading interests in the entire valley, and suc-

ceeded in securing one of the strongest endorsements possible, which includes the city government, boards of trade, newspapers, banks (national and savings), water powers, mills, factories, merchants and prominent persons such as would be recognized in the political, commercial and social world. My chief object was to demonstrate to the Speaker of the House of Representatives that the bill is worthy from economic reasons and should be allowed to come before the House. I did not

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seek *quantity*, but *quality*, and have it.[†]

Let us look at the situation and take for example the Merrimack River. While only 110 miles long, it turns more spindles and furnishes employment to more people than any other river on earth. The prosperity of the industries and the happiness of the people along its banks depend upon the continuity of the water which comes from the great watershed in the White Mountain region.

The denudation of the forests along its banks has already had its effect in floods in time of great precipitation and drouth at other times. It is within fifteen years that Haverhill, where I reside, has suffered twice from the highest water ever known. There must be reason for it.

Let us note the conditions of this prosperous valley and see if it is worth an effort to protect its industries and its people.

The river is formed by the junction of the Pemigewasset and Winnipisaukee Rivers near Franklin, New Hampshire. The principal places are Laconia, Franklin, Tilton, Concord, Manchester, Nashua, Lowell, Lawrence, Haverhill, Merrimac, Amesbury, and Newburyport, all thriving industrial centers.

Their value is shown by the thrift of the people who have invested in national banks, savings banks and trust companies, which represent in capital, surplus, and deposits, the great sum of 143,220,126 dollars.

Its water-powers and factories employ 79,687 persons, who earn, in round figures, 37 million dollars yearly in wages. The capital employed is nearly 100 millions.

The population of this district is about 350,000 souls, while the assessed property valuation is something like 240 millions. There are several towns and cities on other rivers which rise in these same mountains. The banking

interests of those in New Hampshire amounts to 10 millions of dollars, and those in Maine to some 20 millions, which, added to those previously named, amounts to 162,833,086 dollars, all of which is dependent upon this reservation. I have not included the Connecticut River in these figures, which would amount to many millions more.

Now while this White Mountain group is within the State of New Hampshire, it is proper that it should become a National reservation, for every New England State is directly benefited save Rhode Island, and that State by its governor (I hold Governor Higgins's endorsement) is with us. Of the immense water resources, New Hampshire has only about 25 per cent, the other States have the benefit of the balance.

We have treated this subject on its commercial and practical side, only let us look for a moment at its sentimental side. New Hampshire derives a revenue yearly of about \$7,500,000 from visitors, who come to enjoy its grand scenic beauty and invigorating atmosphere.

It will not be thus if the mountains are despoiled, and waste places are the only views that meet the eye. Vast sums have been invested in hotels and a great army of people work therein.

We have to note the great destruction by forest fires, which are more harmful than the woodman's ax. Where the reservations have been established and properly policed, splendid results have been obtained. These reservations can be made self-supporting and, in time, yield a revenue. I have not spoken of the Appalachian Mountains which, while not so much developed, should have our attention. We should anticipate the future, and the next generation will bless us for it. We must leave no stone unturned to accomplish the result, and our watchword should be, "Save the Forests!"

[†]Mr. Cook brought to Washington a petition which, because of the number and weight of the names attached, is the strongest document of its kind as yet produced in the campaign for the Eastern reserves.—Ed.

PROLONGING THE LIFE OF MINE PROPS

An Enormous Saving in the Cost of Coal Mining Can Be Effected by the Use of Preservative Treatments

ONE of the biggest expenses connected with coal mining is found in the mine timbers used to support the various gangways. Their destruction by decay and breaking costs many hundreds of thousands of dollars annually and in some cases the loss of human life. Mine operators are fully familiar with these losses. They know also that the seasoning and the preservative treatment of timber add to its life in service in the mine. But it has only recently been established by experiment that effective seasoning and treating with creosote, carbolinum, and zinc chlorid as wood preservatives can be secured at a cost so

slight in proportion to the greatly increased life of the props as to effect a material saving. The experiment carried on during the past few months by the Philadelphia and Reading Coal and Iron Company, at its collieries near Pottsville, Pa., under the direction of a member of the Forest Service, has resulted in an economy which demonstrates that the preservation of mine props can be put on a firm commercial basis.

In the loss of mine timbers at least 60 per cent are destroyed by decay and the remainder by crush. The percentage charged to decay should be even higher, because many of the timbers which break have already been weakened by decay. Decay is probably the cause of 75 per cent of all failures in mine timbers.

Decay in props is principally caused by wood-destroying fungi. Warm, moist air, together with certain gases always found in mines, greatly favors the development of these fungi. Ventilation is an enormous factor. Timber in the vicinity of shafts and slopes where there is abundance of fresh air lasts longer than that deeper in the mines. The variation of moisture and temperature within mines is so wide that timbers may decay in eight months or may last several years. Timbers that are constantly wet or constantly dry last longer than those subjected to an alternation of these conditions.

Insects play a very considerable part in the destruction of mine timbers. Many forms are found, including bark borers, ants, and timber worms. Their presence may be due to allowing logs to lie unpeeled for a considerable time after felling. Insect-infested timber is frequently overlooked by the inspec-



Sawdust castings of timber borers in newly set mine prop in a Pennsylvania colliery. Timber should have been peeled.

*The data and photographs for this article are furnished by the U. S. Forest Service.



Inserting a prop into vertical open tank containing creosote. Forest service open tank preservative treatment experiments.

tors and allowed to go inside the mines. Ants and cerambycid borers may attack props after they go in the mine. There decay spreads rapidly, and the destructive work of the insects appears to be in no way affected by the lack of light or by presence of gases. Creosote and carbolinium are effective insecticides and stop the work of the wood-borers.

A mine prop is composed of three parts, which together form a "set"—two uprights, called legs, across the top of which is a crosspiece, called a collar. After a prop is decayed sufficiently to necessitate its removal, it is replaced. At times, when only one leg is decayed, that leg alone is removed and replaced by a new one. Frequently, however, the whole set is replaced, and this involves the destruction of all the logs by sawing them in two to remove them.

Various materials and methods for

preservative treatment have been tried, and up to the present time all have proved efficient. Only time will show which are the most satisfactory from them practical point of view. Applied with a brush, creosote and carbolinium give an excellent penetration in solid wood, frequently averaging from one-fourth to one-half an inch. The amount of oil that seasoned loblolly pine takes from a brush application is surprising, especially in the end grain. Little difference in penetration has as yet been noted between creosote and carbolinium, though the latter seems better on absolutely green timber. All brush treatments were applied hot and in two coats. The second coat absorbed practically as much oil as the first.

Open-tank treatment has succeeded beyond all expectations. This consists of an immersion of the timbers for several hours in preservative and then allowing them to cool to atmospheric temperature. While the feasibility of the open-tank treatment has been demonstrated, there is much yet to be learned. The cost may be reduced by shortening the immersion and thus consuming less fluid. A very heavy treatment is not necessary. The best preservatives approximately double the serviceable life of railway ties and may be counted on to do the same or better for mine props. Seasoned and treated props, which were put in alongside of the old-style props, unseasoned and unpeeled, are as sound as ever, while the others are already showing signs of fungous growth and decay.

Most of the props in the collieries investigated are loblolly pine; Pennsylvania pitch pine furnishes 20 per cent; black and red oak, 10 per cent. The loblolly pine comes from Maryland and Virginia, the pitch pine from north-central Pennsylvania, and the oak largely from New Jersey and Pennsylvania. The experiments have been mainly on loblolly pine, the wood most used.

FORESTRY IN HAWAII

Unique Conditions that Must Govern Where
a Protection Cover is of First Importance

BY

HON. L. A. THURSTON

Chairman Board of Agriculture and Forestry, Hawaii, at Annual Meeting

HAWAII is the most uniquely situated, perhaps, of any section of the globe in regard to a number of different points. For example, it is the farthest removed from other lands, of any spot on the globe. The distance east and west from Hong Kong to Panama, in a straight line, is 10,000 miles, and Hawaii is the only spot of land in all that distance. A line drawn north and south from the Aleutian Islands to Tahiti, the nearest port on the south, is 6,000 miles long, and Hawaii is in the middle of that

4,000 feet high, four more that are over 5,000 feet, one that is 6,000, one 8,000, one 12,000, and one 14,000 feet high.

We have the following conditions to contend with: For ten months of the year the trade winds blow off the ocean, striking the cold peaks of these mountains and causing a tremendous rainfall on one side of the islands, and on the other almost desert conditions prevail. During 1904, for example, 420 inches of rain fell on the windward side and on the lee side only 10



Forest nearly ruined by grazing, North Kohala, Hawaii.

line. There are other peculiar points about the territory. For example, within its area of only 6,000 square miles—a little larger than Connecticut—there are four mountains over

inches. Yet the two regions are a distance of only 40 miles apart. On the slope of one mountain, 1,370 feet high, three years ago there was during the month of February, 84 inches of rain-

fall and the slope is so steep that within three days thereafter there was no running water left on the side of the mountain. Under these conditions artificial irrigation for the leeward side has been developed probably to a greater extent than anywhere else in the world.

The islands are exclusively agricultural; there are no minerals there in commercial quantities, and out of the products of approximately 225,000 acres the annual export and import of Hawaii is now about \$50,000,000. This is possible only because of the most intensive culture, by taking water



The difference between irrigated and unirrigated sugar cane at the Hawaiian Agricultural Station.

from the windward side of the mountains to the lee side, where there is richer soil but not enough water. A few figures will illustrate to what an extent the irrigation industry has gone on. There are now 207 reservoirs, constructed to hold water collected during heavy rainfall, to be used whenever the rainfall is lacking. These 207 reservoirs have a capacity of 7,764,000,000 gallons. In order to bring this water around the mountains to the dry side there have been built fifteen great aqueducts of a length of about 40 miles, and of a daily capacity of 620,000,000 gallons.

Yet the mountain water has not been sufficient to carry on the irrigation necessary. It was discovered, however, a few years ago that the ground was filled with water, rising at least to sea-level, and, in the island of Oahu, rising to an elevation of 10 to 42 feet above sea-level. By putting down artesian wells this ground water could be made available. This artesian well industry has been developed until, on the island of Oahu alone, there are 600 such wells of an average bore of 10 inches and having an average depth of 450 feet, though some are 1,100 feet deep. This water has been taken advantage of by the installation of big pumping plants which lift it to a maximum elevation of 450 feet. There are now 110 of these pumping plants with a total capacity of 578,000,000 gallons per day. You can see that under these conditions, the matters of rainfall and forest preservation are of vital importance.

It was not recognized by the great mass of people until a few years ago that there was any benefit to be derived from forest preservation. The forests formerly reached from mountain-top to sea-edge, but in recent years large numbers of mills have been operated on all four of the large islands; and the cutting has increased to such an extent that, in places, the islands are almost denuded to an elevation of 2,000 or 3,000 feet above sea-level. About ten or fifteen years ago some of the people saw the necessity

of creating forest reserves and stopping this denudation. It was uphill work at first, but the earnest few continued their agitation until a small appropriation was created by the local government in the then existing Kingdom of Hawaii. This appropriation has since been carried on by the present government until now there is an appropriation of about \$15,000 per annum. Within the last three or four years the people have wakened up to the situation and a law was passed in 1903 establishing a Board of Agriculture and Forestry, to which were afterwards added Divisions of Entomology and Animal Industry. Under this law a Division of Forestry was organized, and by the kindness of Mr. Pinchot one of his assistants, Mr. Hosmer, was allowed to come down there and be our chief executive forester. The work, so far, has consisted chiefly of setting apart forest reserves. In the three years since this board was organized we have segregated 300,000 acres of forest reserves, about half of which is government land and the other half the property of private individuals. The sugar plantation owners have awakened to the situation to such an extent that they have not only allowed their own land to go into forest reserves, without pay, but they have agreed with the government, under contract in some instances, that they will not only put under forest management their own land but help to reforest government lands at private expense. That is the present hopeful condition. Just now, as already indicated, about 150,000 acres of private land and 150,000 acres of government land are in forest reserves. We expect within a year to add 100,000 acres more to the forest land, partly private and partly public. The situation is very encouraging there and we look forward with hope to the future.

I have heard it argued that forests not only prevent quick run-off of rain, but that they cause rain; and I have heard it denied. I believe that under the conditions we have there—the trade winds, the rapidly rising moun-



Forest entirely ruined by grazing, Maui.

tains—there is caused a condensation of moisture in a much shorter distance than where there is a plain or gradually rising country as in most parts of the United States.

An instance of what can be done by trees in causing the condensation of moisture came to my attention when Mr. Hall, of the Forest Service, came out to investigate forest conditions on the islands. On one of our trips together we came to a place where there was a dairy at an elevation of 4,800 feet. At the pen there was a grove of perhaps 20 eucalyptus trees having a height of 80 to 100 feet. Under this grove there was a shed of corrugated iron 20 or 30 feet high. Alongside of the shed we saw a tank full of water and alongside of the tank a pool, perhaps 20 feet long by 12 feet wide and 3 or 4 inches deep. We inquired where the water came from and were told that it came from condensation of clouds on these trees. The clouds fall during the night and the condensation on the cold eucalyptus leaves caused water to drip from

the leaves down upon the shed, from which it was conveyed by a trough to the tank; and the tank, running over, filled the pool. That may, perhaps, sound somewhat fishy. We shall be very glad to have any member of the Forestry Association come to Hawaii, and will take pleasure in showing him the place I have described.

Our forests are all tropical; none of the trees we have there grow here; and practically none that are here grow there. Because the native trees are of tropical origin hardly any of them grow above an elevation of 6,000 feet. We believe that coniferous growth can be established there. We have so little money available from the territory that we have turned to the Federal Service, since it is not supplying any money whatever for forestry in Hawaii. If Federal assistance can be secured, we hope that there may be a new industry in the supply of lumber thus created, an industry which does not now exist, except in hardwood for furniture.

THE BLUE RIDGE WATERSHED

Importance of Its Protecting Forests and Need
of Prompt Action to Secure Their Preservation

BY

S. T. KELSEY

At Annual Meeting.

THE Atlantic Coast Range of the Southern Appalachian Mountains, known as the Blue Ridge, rising from the south bank of the Potomac extends in a southwest course and a very direct line for about 600 miles until it sinks and is lost in the receding foot hills and low lands of Alabama; and in all this long mountain chain it is unbroken by any water course south of the Roanoke River in Virginia.

A straight line across the country from Boston to New Orleans will follow close along the water divide of the entire range; and we may notice in passing that this straight line will run through, or very near to, New York, Philadelphia, Baltimore and Washington, and the principal interior and Gulf cities of the South, and within a few miles of this line are found almost one-half of the urban population of the United States. On the south and east of the divide the water flows into the Atlantic and the Gulf of Mexico. On the north and west it makes its way through the higher but broken ranges of the Alleghany Mountains, and finally from millions of mountain springs and rills it is gathered mostly into the Great Kanawa and Tennessee Rivers and flows thence into the Ohio and the Mississippi.

The streams having their source in the Blue Ridge help to water every State south of the Potomac and the Ohio and east of the Mississippi, and whatever of rain or sunshine falls upon the Ridge affects the flow of almost every important water course of all of this vast territory. The question

then of conserving the water supply and, so far as may be, regulating the run-off from this principal Appalachian divide is of more than local importance.

In southwestern New York, where the Alleghany River makes its great north bend to get around the spurs and foot hills of the Appalachian Mountains, I played, seventy years ago, on the banks of a beautiful perennial brook that ran through my father's farm. Up the stream, from this farm to the water divide, the land remained for nearly twenty years in unbroken forest. During that time the stream was never known to become dry or to cause destruction from flood; but after a time the saw-mills came; they were followed by the settlers who cleared up the bottomlands and a large part of the adjacent hillsides. The perennial brook became only a muddy, wet-weather water course. I visited the old home two years ago and found only a little dirty "branch" in place of the ample stream of pure, crystal water that I knew of old.

The influence of forests upon the rainfall seems still a mooted question, but the influence of forests in regulating the run-off after the rain has fallen is unquestionably very great. The forest floor of leaves, twigs, sticks and roots, and the soft, spongy earth beneath, absorb the water and hold it in check; and, of course, the removal of the forest and the exposure of the bare earth allows the water to run off more quickly and exaggerates the conditions of flood and drouth. The story of the

little New York brook is the story of other brooks and larger creeks and rivers all over the land, telling us in unmistakable language that the permanence and regularity of our water supplies are largely dependent on the preservation of our forests. But our forests have been so big, and danger of destruction seemed so far off, that the lesson, so far as our Southern Appalachian forests are concerned, has been practically unheeded, and the lumberman and the settler pursue their unrestricted work of destruction upon the forest, removing every check that nature had placed upon the outflow; opening the flood gates of the mountains and turning the deluge loose upon the valleys and plains below. imperiling the farmer, the planter, and the manufacturer in the Ohio and Mississippi valleys and upon the Atlantic and Gulf slope, from the Potomac to the Chattahoochee, damaging all of the valuable water-powers of the South, and all of the rivers and harbors for purposes of transportation.

I have wandered far from the Blue Ridge, however, to show the importance of its position and necessity for its protection. I will now try to show some of the more local features and forest conditions, confining my remarks to the North Carolina section with which I am best acquainted; attempting, however, no detailed description, which for our present purpose is unnecessary. The Blue Ridge runs through North Carolina in a general southwest direction, in unbroken chain, a distance of nearly 300 miles, from Virginia to Georgia. The general elevation of the range through the State is almost 4,000 feet above sea level, its lowest gaps being from 2,500 to 3,500 feet and its highest peaks, from 4,500 to 5,987 feet in Grandfather Mountain; while the closely allied Black Mountain range has 13 peaks over 6,000 feet; Mt. Mitchell, 6,711 feet, being the highest land in the United States east of the Mississippi. On the south and east there is a general rapid descent of 1,500 to 3,000

feet from the crest of the ridge to the Piedmont valleys, with many spurs and side ridges running out over the valleys. Between these ridges are some fine, fertile coves and strips of rich bottomlands, that formerly held heavy forests, but the general lay of the land is steep, rough and broken, the soil thin and often the rock is near the surface. There are considerable bodies of excellent forest growth, but it is generally rather scant, and, owing mainly to prevalence of forest fires, of inferior quality. There is the usual undergrowth of rhododendron, kalmia, and sprouts from roots of old, deadened trees. These general conditions prevail on the southeast slope of the Blue Ridge over a belt of country 10 to 25 miles wide, running from Virginia to Georgia.

Most of the fertile coves and bottomlands, and some of the ridges and mountain sides, have long been cleared, and the woods have been stripped of the more valuable trees. Local mills supplied the local wants, but there had been no general onslaught upon the forest until the recent increase in price of lumber and the readier transportation facilities enticed the professional and practical lumbermen into the field. These now have their mills in almost every valley. At the present rate of cutting, the Southern Blue Ridge belt will, within the next ten years, be practically stripped of its remaining timber. Heretofore, only the large trees were cut, but now almost everything is taken down to 12 inches in diameter or less. The brush is left, and when it becomes dry the fire follows in the track of the lumberman, killing whatever forest growth had escaped the ax and saw; and the fire is followed by the flood that sweeps down the denuded surface and the steep and gulied logging ways.

"And oft both path and hill are torn,
Where wintry torrents down are
borne,
And heap upon the cumbered land
Its wreck of gravel, rock and sand."

And not alone the mountain sides and valleys suffer, but the accumulated flood from these mountain torrents, with its load of silt, is carried into the rivers and harbors below, making transportation more difficult and dangerous, and swelling the necessary appropriations for river and harbor improvements.

On the north and west from the crest of the Blue Ridge the conditions are quite different. The descent from the top is generally gradual, much of the way there are large streams running for long distances parallel with the Blue Ridge, with a fall of but few feet per mile and becoming considerable rivers before they turn to the north-westward and make their way through the higher Alleghany ranges that form the north-western border of the Blue Ridge plateau. There are steep and rugged lands with high mountain peaks, cliffs and rocky gorges, but there are also large areas of level or gently undulating land, and the soil is fertile.

The land was originally, except upon the highest mountain tops, covered with a heavy forest growth. Most of the lands suitable for cultivation, and too much of the steep mountain sides, have been cleared, and the counties occupying the crest of the Ridge and the north-west slopes and plateau lands have a large and prosperous population. A considerable portion of the rougher lands and the steep mountain-sides have remained in original, though partly cut-over, forest. The progress of lumbering has been much the same as upon the south-east side, but here, as there, the lumbermen and large operators have recently entered the field and are cutting at a rate that will soon strip the entire Blue Ridge plateau. Within two miles of my mountain home one mill has, within the last six years, cut over 60,000,000 feet in the Linville valley and adjacent hill sides. The lumbered tract is now all burned over and is a blackened waste, with scarce a seed tree left to begin the work of reforestation.

And soon or late all of these lum-

bered tracts are fire-swept, and will be, as long as present lumbering methods are followed. We are told that there is a growing sentiment among lumbermen in favor of conservative lumbering, but we see in actual practice that old methods are still pursued, and that they are more destructive than ever before, because the higher price and more varied use of timber leads to closer cutting. The lumberman's object is to cut every tree on the land that will pay for the cutting, and to get it to the mill and to market as cheaply as possible, with no thought for the morrow. He is in the business, as other people are in other business, for the profit there is in it; and if he is to be condemned and summarily punished for his sins, who of us shall cast the first stone? But whoever is to blame, we are not only using up our diminishing forests with accelerated rapidity but we are destroying what we can not turn to immediate use and profit, and leaving the land in the most unfavorable condition for reforestation. And unless some system of forest protection and control, by State or Nation, or both, shall *soon* be devised, the forests of this great Appalachian divide will be laid waste, the source of future forest supplies largely destroyed and every Southern State, from the Atlantic to the Ohio and the Mississippi, exposed to increased peril from flood and drouth. The Appalachian Forest Park will be a beginning in the right direction and doubtless be of great value as an object lesson showing the advantage of intelligent forest management; but it will be only a beginning. The great bulk of the Southern Appalachian Mountain lands will be, and doubtless for a long time remain, outside the park, and soon or late a way *must* be found to insure their preservation. We have here problems to solve as big and as difficult as the making of the Panama Canal, and to the people of the United States of vastly greater importance.

At least two-thirds of all the Southern Appalachian Mountain lands are worth more for forest production than

for anything else, and they should be held and used for that purpose. Much of this land is now covered with only a scant growth of brush and inferior timber, but nearly all is capable of

growing some useful forest trees that will add wealth to the country, beauty to the landscape, and protection to the land.

THE FORESTRY SITUATION IN COLORADO

The Favorable Sentiment Toward Reserves, and How It Has Grown

BY

ENOS A. MILLS

At Annual Meeting.

IN Colorado, the prospect for a tree crop is excellent. Public opinion says that the State shall have forests. It is only within the last two years that a majority of the people have become friendly toward forestry or reserves. Colorado now has, approximately, 12,500,000 acres of forest reserves. These reserves are daily becoming more popular, not only with those who deal in reserve produce, but also with all of the people. A majority of the people are now watching the workings of the reserves, and they are frequently discussed with interest and satisfaction.

Colorado was among the first to have a reserve; of course this was a source of delight to a few people in the State; but to only a few. Many were indifferent; a majority were displeased with the forest reserve idea, and several powerful interests, together with many of the leading officials of the State, not only rejected the forestry idea but denied the right of the Government to establish reserves.

For several years the opponents of reserves were denunciatory in their opposition. Such was the state of public opinion that in most localities it was considered good form to jest concerning a forest fire whenever one burned on a reserve. And any one who said

words for forestry or for reserves was called an enemy of society.

But after a few years the number of those who opposed reserves began to dwindle, and at the present time I believe a majority of the people in Colorado are enthusiasts for them. Many are now asking when the burned areas of the reserves will be reforested, most newspapers are sympathetic and some of them aggressive, and it now is considered honorable to agitate for forestry.

I believe this marked change in public opinion has been brought about chiefly by the methods of Forest Service officials. Their explanatory way, the square deal spirit at all time manifest, the civility and the calmness, the firmness and the fairness with which the Service met every issue, won out, and I think won permanently by convincing the opposition.

Of course the Colorado Forestry Association accomplished something. Never numerically strong, but with its few members audacious after the manner of the tribe, they have done much educational work. Last fall each candidate for the State legislature pledged that if elected he would do all he could for forestry. At present the Colorado Forestry Association is assisting the

honorable members to remember, and it is believed that the present session of the legislature will give Colorado a State forestry bureau, with a commissioner in charge.

The Federated Women's Clubs of Colorado have been recently doing effective work for forestry. I believe that ninety per cent of the members are in favor of trees. Last year 55 clubs had forestry meetings; the meetings were public and were largely attended. The papers and addresses given handled the subject understandingly. Of course these club women are enriching the minds of their children with information on this vital question, and, having the ballot, they can if necessary emphasize their convictions at the polls.

General Palmer and Dr. Bell have richly endowed a chair of Forestry for Colorado College, and a short course in Forestry has just been added at the State Agricultural College.

What I have said of Colorado I think in a general way describes for-

estry progress and the present feeling toward it in the west; and this though when reserves were first established a majority of the people were indifferent to them or else opposed them, while at the present time a majority of the people are actively friendly toward them. And, further, this change of feeling has been brought about chiefly by the merit within the reserves themselves and by the way in which they have been managed.

The people in Colorado realize that forestry is a big and an important question, and that it will require co-operation for effective solution; that the Government has work to do, that the State has work to do, and that they must do something for trees themselves. People in the West are now friends of trees. Much of the heretofore treeless plains is to be planted, and cleared and burned mountain slopes are soon again to be bettered and beautified with the splendors and the shadows of the pines.

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RECENT PUBLICATIONS

Management of Forest Lands. Circular issued by Alfred K. Chittenden and Allan B. Patterson, Consulting and Contracting Foresters, Baltimore, Maryland.

Chittenden & Patterson is the firm name of a new business organization formed by two young men who were but recently in the Office of Forest Management, United States Forest Service. They have issued a small circular, printed in excellent taste by the University Press of Sewanee, Tennessee. In this circular they call attention to the increasing need of proper management of forest lands, to increase revenue producing capacity and to properly care for future timber crops. It is an excellent commentary on the growing appreciation of the principles of forestry on the part of timberland owners that a business of forest management can be developed and made to offer such financial returns that young men of ambition can embark upon the venture with success assured from the start. It may further be considered a favorable commentary on the value of American forest education, and upon the practical work which the Forest Service,—where these men gained their experience,—is doing. Perhaps, also, it points to the fact that the increasing demand for foresters will make it harder for the Government Service to secure or to keep good men, unless it can more nearly meet the emoluments which may be expected outside.

Owners of timber tracts, woodlot owners, proprietors of forested estates, water companies, timber contractors, and any others interested in practical problems of forestry will do well to send for this circular, which may be had free for the asking, of Chittenden & Patterson, 524 Law Building, Baltimore, Maryland.

On the Great American Plateau. By T. Mitchell Prudden. Cloth, gilt top, illustrated by photographs and by drawings from life by Edward Leaming; 237 pp. and map. G. P. Putnam's Sons, New York. \$1.25.

Colorful, picturesque, and appreciative is

this account of the Great American Plateau, the highland country of our Southwest. The author depicts its various phases with a loving interest which has grown from a thorough familiarity. He is a writer of broad culture, who sees with the eye of an artist the scenic beauties, who views with the discerning knowledge of humanitarian and ethnologist the passing of the aboriginal races that make their homes in the desert country.

The one fault with the book, and perhaps, considering the limits the author sets for himself, it is not wholly a fault, is the fact that the views he gives are but tantalizing glimpses. Tantalizing enough, to be sure, to persuade the reader that he, too, must go to the arms of the open country of wide horizons and get at first hand its serene and inspiring influences.

A factor of value, for which the author cannot be too highly praised, is the excellent topical index, and the map, which give the volume real standing as a work of convenient reference.

Wolves in Relation to Stock, Game, and the National Forest Reserves. By Vernon Bailey, Bulletin 72, Forest Service; Superintendent of Documents, Government Printing Office. 10 cents.

Bulletin 72, "Wolves In Relation to Stock, Game, and the National Forest Reserves," by Mr. Vernon Bailey, of the Biological Survey, has just been published by the Forest Service and can be purchased for 10 cents of the Superintendent of Documents, Government Printing Office, Washington, D. C. This bulletin shows the distribution of wolves in the United States, discusses the extent to which they prey upon stock and game, and gives directions for destroying them by shooting, trapping and poisoning, and for using wolf-proof fences. The effectiveness of bounties is also considered. The study upon which the bulletin is based was made in co-operation with the Biological Survey in the interest of those using the reserve ranges for the pasturage of stock.



DEPARTMENT OF THE INTERIOR, United States Geological Survey, Reclamation Service, Washington, D. C., January 12, 1907. Sealed proposals will be received at the office of the United States Reclamation Service, Crawford, Nebraska, until 2 o'clock p. m., February 27, 1907, for building the Pathfinder Dike, situated about 45 miles southwest of Casper, Wyoming, and involving about 170,000 cubic yards of earth excavation and about 16,000 cubic yards of riprap. Particulars may be obtained at the offices of the U. S. Reclamation Service at Washington, D. C., Crawford, Nebraska, and Casper, Wyoming. E. A. HITCHCOCK, Secretary.

DEPARTMENT OF THE INTERIOR, United States Geological Survey, Reclamation Service, Washington, D. C., January 8, 1907. Sealed proposals will be received at the office of the United States Reclamation Service, Huntley, Montana, until 10 o'clock a. m., March 12, 1907, for the construction of about 185 miles of canals, ranging in capacity from 5 to 1,000 cubic feet per second, involving approximately 900,000 cubic yards of excavation, and doing such other work as may be necessary for the completion of the canals. Particulars may be obtained by application to the U. S. Reclamation Service, Washington, D. C., or to the U. S. Reclamation Service, Cody, Wyoming. E. A. HITCHCOCK, Secretary.

DEPARTMENT OF THE INTERIOR, United States Geological Survey, Reclamation Service, Washington, D. C., January 4, 1907. Sealed proposals will be received at the office of the United States Reclamation Service, Williston, North Dakota, until 10 o'clock a. m., March 5, 1907, for the construction of canals and ditches, involving the excavation of about 420,000 cubic yards of earth, and furnishing labor and material for a pumping station and various structures requiring about 120,000 feet B. M. of lumber, about 1,300 cubic yards of concrete, and 10,000 pounds of structural steel, in connection with the Buford-Trenton project. Plans, specification and proposal blanks may be obtained from the Chief Engineer, United States Reclamation Service, Washington, D. C., or from H. A. Storrs, Electrical Engineer, Williston, North Dakota. E. A. HITCHCOCK, Secy.

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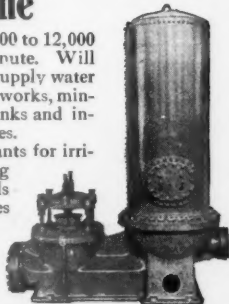
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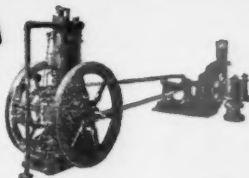
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